

# **CANDID CONFESSIONS OF THE SCIENTISTS**



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*Our future, our universe, and other weighty topics*

Thursday, April 27, 2023

## Candid Confessions of the Scientists

Many types of scientists tend to parrot the dogmas of the academia belief community that they belong to, repeating the same old doubtful tenets, dubious narratives, unfounded boasts and unbelievable triumphal legends over and over again. But very rarely a scientist may let down his or her guard, and make confessions that defy such pretentious proclamations or defy the ideology of such a community. Below are some choice examples of such confessions. In some of the cases below where scientists say they don't understand how the brain does something, we have good reason for doubting that the brain does that thing.

### The Origin of Life

- *"The transformation of an ensemble of appropriately chosen biological monomers (e.g. amino acids, nucleotides) into a primitive living cell capable of further evolution appears to require overcoming an information hurdle of supraastronomical proportions ([Appendix A](#)), an event that could not have happened within the time frame of the Earth except, we believe, as a miracle ([Hoyle and Wickramasinghe, 1981, 1982, 2000](#)). All laboratory experiments attempting to simulate such an event have so far led to dismal failure ([Deamer, 2011](#); [Walker and Wickramasinghe, 2015](#))."* -- "Cause of Cambrian Explosion - Terrestrial or Cosmic?", a [paper](#) by 21 scientists, 2018.
- *"Biochemistry's orthodox account of how life emerged from a primordial soup of such chemicals lacks experimental support and is invalid because, among other reasons, there is an overwhelming statistical improbability that random reactions in an aqueous solution could have produced self-replicating RNA molecules."* John Hands MD, "Cosmo Sapiens:

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Human Evolution From the Origin of the Universe," page 411.

- *"The ongoing insistence on defending scientific orthodoxies on these matters, even against a formidable tide of contrary evidence, has turned out to be no less repressive than the discarded superstitions in earlier times. For instance, although all attempts to demonstrate spontaneous generation in the laboratory have led to failure for over half a century, strident assertions of its necessary operation against the most incredible odds continue to dominate the literature."* -- 3 scientists ([link](#)).
- *"The interconnected nature of DNA, RNA, and proteins means that it could not have sprung up ab initio from the primordial ooze, because if only one component is missing then the whole system falls apart – a three-legged table with one missing cannot stand."* -- ["The Improbable Origins of Life on Earth"](#) by astronomer Paul Sutter.
- *"Even the simplest of these substances [proteins] represent extremely complex compounds, containing many thousands of atoms of carbon, hydrogen, oxygen, and nitrogen arranged in absolutely definite patterns, which are specific for each separate substance. To the student of protein structure the spontaneous formation of such an atomic arrangement in the protein molecule would seem as improbable as would the accidental origin of the text of Virgil's 'Aeneid' from scattered letter type."* -- Chemist A. I. Oparin, "The Origin of Life," [pages 132-133](#).
- *"The expected number of abiogenesis events is much smaller than unity when we observe a star, a galaxy, or even the whole observable universe."* -- Scientist Tomonori Totani, "Emergence of life in an inflationary universe," a paper confessing we would not expect one natural origin of life (abiogenesis) even in the entire observable universe ([link](#)).
- *"The advent of life from prebiotic origins remains a deep and possibly inexplicable scientific mystery."* -- Scientist Stephen Mann ([link](#)).
- *"The origin of cells is shrouded in near-total mystery."* -- A recent biology textbook written by scientists ([link](#)).
- *"We now know not only of the existence of a break between the living and non-living world, but also that it represents the most dramatic and fundamental of all*

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*the discontinuities of nature. Between a living cell and the most highly ordered non-biological system, such as a crystal or a snowflake, there is a chasm as vast and absolute as it is possible to conceive."* --

Michael Denton, MD and biochemistry PhD,  
"Evolution: A Theory in Crisis," [page 250](#).

## The Origin of Multicellular Organisms

*"Big picture, we want to understand how initially dumb clumps of cells, cells that are one or two mutations away from being single-celled, don't really know that they're organisms — they don't have any adaptations to being multicellular, they're just a dumb clump — how those dumb clumps of cells can evolve into increasingly complex multicellular organisms, with new morphologies, with cell-level integration, division of labor, and differentiation amongst the cells. Just like, we want to watch that process of how do these simple groups become complex. And this is, like, one of the biggest knowledge gaps in evolutionary biology. I mean, in my opinion....We don't really know the process through which simple groups evolve into increasingly complex organisms."*

-- Biologist Will Ratcliff ([link](#)).

## The Origin of Species: Speciation

- *"The evolutionary divergence of a single species into two has never been directly observed in nature, primarily because speciation can take a longtime to occur."* -- Irwin, Bensch, and Price, "Speciation in a Ring," Nature, 2001.
- "Genetics might be adequate for explaining microevolution, but micro-evolutionary changes in gene frequency were not seen as able to turn a reptile into a mammal or to convert a fish into an amphibian. Microevolution looks at adaptations that concern only the survival of the fittest, not the arrival of the fittest. As Goodwin (1995) points out, **'the origin of species — Darwin's problem — remains unsolved.'**" "[Resynthesizing Evolutionary and Developmental Biology](#)," Gilbert, Opitz and Raft, 1996.
- "All the three major textbook examples for alleged gradual species-to-species transitions have been debunked by more modern mainstream research." -- Paleontologist Günter Bechly ([link](#)).



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- *"The intuitive feeling that pure chance could never have achieved the degree of complexity and ingenuity so ubiquitous in nature has been a continuing source of scepticism ever since the publication of the Origin; and throughout the past century there has always existed a significant minority of first-rate biologists who have never been able to bring themselves to accept the validity of Darwinian claims. In fact, the number of biologists who have expressed some degree of disillusionment is practically endless."* -- Michael Denton, MD and biochemistry PhD, "Evolution: A Theory in Crisis," 1986, [page 327](#).

## Evolution and Biological Origins

- *"Nature makes no leap, meaning that evolution took place slowly and gradually. This was Darwin's core belief. And yet that is not how the fossil record works. The fossil record shows more 'leaps' than not in species."* -- "Lamarck's Revenge" by paleontologist Peter Ward, [page 43](#).
- *"Although the origin of the eukaryotic cell has long been recognized as the single most profound change in cellular organization during the evolution of life on earth, this transition remains poorly understood."* -- Two biologists ([link](#)).
- *"Charles Darwin, in edition after edition of his great masterpiece, railed against the fossil record. The problem was not his theory but the fossil record itself. Because of this, paleontology became an ever-greater embarrassment to the Keepers of Evolutionary Theory. By the 1940s and '50s this embarrassment only heightened. Yet data are data; it is the interpretation that changed. By the mid-twentieth century, the problem posed by fossils was so acute it could no longer be ignored: The fossil record, even with a century of collecting after Darwin, still did not support Darwinian views of how evolution took place. The greatest twentieth century paleontologist, George Gaylord Simpson, in midcentury had to admit to a reality of the fossil record: 'It remains true, as every paleontologist knows, that most new species, genera, and families, and that nearly all new categories above the level of families, appear in the record suddenly, and are not led up to by known, gradual, completely continuous transitional sequences.' "* -- "Lamarck's Revenge" by paleontologist Peter Ward, [page 43](#).
- *"The first eye, the first wing, the first placenta. How they emerge. Explaining these is the foundational*

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*motivation of evolutionary biology. And yet, we still do not have a good answer. This classic idea of gradual change, one happy accident at a time, has so far fallen flat."* -- [Biologist Armin Moczek](#).

- *"Considering that the total number of known fossil species is nearly one hundred thousand, the fact that the only relatively convincing morphological sequences are a handful of cases like the horse, which do not involve a great deal of change, and which in many cases like the elephant may not even represent phylogenetic sequences at all, serves to emphasize the remarkable lack of any direct evidence for major evolutionary transformations in the fossil record."* -- Michael Denton, MD and biochemistry PhD, "Evolution: A Theory in Crisis," 1986, [page 185](#).
- *"Every textbook of evolution asserts that reptiles evolved from amphibians but none explains how the major distinguishing adaptation of the reptiles, the amniotic egg, came about gradually as a result of a successive accumulation of small changes. The amniotic egg of the reptile is vastly more complex and utterly different to that of an amphibian. There are hardly two eggs in the whole animal kingdom which differ more fundamentally."* -- Michael Denton, MD and biochemistry PhD, "Evolution: A Theory in Crisis," 1986, [page 218](#).
- *"The origin of the amniotic egg and the amphibian - reptile transition is just another of the major vertebrate divisions for which clearly worked out evolutionary schemes have never been provided. Trying to work out, for example, how the heart and aortic arches of an amphibian could have been gradually converted to the reptilian and mammalian condition raises absolutely horrendous problems....The living world is full of innumerable other systems, particularly among the insects and invertebrates, for which gradual evolutionary explanations have never been provided."* -- Michael Denton, MD and biochemistry PhD, "Evolution: A Theory in Crisis," 1986, [page 219](#).
- *"Major transitions in biological evolution show the same pattern of sudden emergence of diverse forms at a new level of complexity. The relationships between major groups within an emergent new class of biological entities are hard to decipher and do not seem to fit the tree pattern that, following Darwin's original proposal, remains the dominant description of biological evolution. The cases in point include the*

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*origin of complex RNA molecules and protein folds; major groups of viruses; archaea and bacteria, and the principal lineages within each of these prokaryotic domains; eukaryotic supergroups; and animal phyla. In each of these pivotal nexuses in life's history, the principal 'types' seem to appear rapidly and fully equipped with the signature features of the respective new level of biological organization. No intermediate 'grades' or intermediate forms between different types are detectable."* -- Biologist Eugene Koonin, "The Biological Big Bang model for the major transitions in evolution" ([link](#)).

- "No novel mechanisms of evolution have yet been discovered in almost 100 years." -- Zachary B. Hancock, evolutionary biologist, 2025 ([link](#)).
- "This is the basic story of evolution, as recounted in countless textbooks and pop-science bestsellers. The problem, according to a growing number of scientists, is that it is absurdly crude and misleading." --Stephen Buranyi, science writer, "[Do We Need a New Theory of Evolution?](#)" in The Guardian.
- "I may challenge the adherents of the strictly Darwinian view, which we are discussing here, to try to explain the evolution of the following features by accumulation and selection of small mutants: hair in mammals, feathers in birds, segmentation of arthropods and vertebrates, the transformation of gill arches in phylogeny, including the aortic arches, muscles, nerves, etc.; further, teeth, shells of mollusks, ectoskeletons, compound eyes, blood circulation, alternation of generations, statocysts, ambulacral system of echinoderms, pedicellaria of the same, cnidocysts, poison apparatus of snakes, whalebone, and, finally, primary chemical differences like hemoglobin vs. hemocyanin, etc. Corresponding examples from plants could be given." -- Biologist Richard Goldschmidt, "The Material Basis of Evolution," [pages 6-7](#).
- "While scientists are still working out the details of how the eye evolved, we are also still stuck on the question of how intelligence emerges in biology." -- Scientists Rafael Yuste and Michael Levin, [an article](#) in Scientific American.
- "Biological systems have evolved to amazingly complex states, yet we do not understand in general how evolution operates to generate increasing genetic and functional complexity." -- four scientists,

### Origination Is Physically Inexplicable

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Here is the second in a series of videos I am making about news accounts of ESP, precognition, out-of-body experiences, prophetic dreams ...



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## "Adaptive ratchets and the evolution of molecular complexity."

- *"I should like to critically object that this model has not been supported by an affirmative estimate of probabilities so far. Such an estimate of the theoretical time scale of evolution as implied by the model should be compared with the empirical time scale. One would need to show that, according to the assumed model, the probability of de facto existing purposeful features to evolve was sufficiently high on the empirically known time scale. Such an estimate has nowhere been attempted though."* -- Eminent physicist Wolfgang von Pauli, discoverer of the biologically crucial Pauli Exclusion Principle ([link](#)).
- *"Until reading an able and valuable article in the North British Review (June, 1867), I did not appreciate how rarely single variations, whether slight or strongly marked, could be perpetuated."* -- Charles Darwin ([link](#)).
- *"The higher the organization, whether of an entire organism or of a single organ, the greater is the number of the parts that cooperate, and the more perfect is their cooperation ; and consequently, the more necessity there is for corresponding variations to take place in all the cooperating parts at once, and the more useless will be any variation whatever unless it is accompanied by corresponding variations in the cooperating parts; while it is obvious that the greater the number of variations which are needed in order to effect an improvement, the less will be the probability of their all occurring at once....There are improbabilities so great that the common-sense of mankind treats them as impossibilities. It is not, for instance, in the strictest sense of the word, impossible that a poem and a mathematical proposition should be obtained by the process of shaking letters out of a box ; but it is improbable to a degree that cannot be distinguished from impossibility ; and the improbability of obtaining an improvement in an organ by means of several spontaneous variations, all occurring together, is an improbability of the same kind."* -- Joseph John Murphy, biology scholar, author of a massive biology tome ([link](#)).
- *"What gambler would be crazy enough to play roulette with random evolution? The probability of dust carried by the wind reproducing Durer's 'Melancholia' is less infinitesimal than the probability of copy errors in the DNA molecule leading to the formation of the*

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*eye...There is no law against daydreaming, but science must not indulge in it."* -- Biologist Pierre-Paul Grasse ([link](#)).

- *"Natural selection acting on populations is incapable of guiding evolution."* -- Biologist Pierre-Paul Grasse ([link](#)).
- *"The Lamarckian and Darwinian theories, in whatever form, do not resolve the major evolutionary problem -- that of the genesis of the main systematic units, the fundamental organizational schemes."* -- Biologist Pierre-Paul Grasse, "Evolution of Living Organisms: Evidence for a New Theory of Transformation" ([link](#)).
- *"We are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life. Careful examination of the evidence for Darwinian theory should be encouraged."* -- Statement signed by about 1000 scientists ([link](#)).
- *"The open-ended generation of novelty does not fit cleanly in the paradigmatic frameworks of either biology or physics."* -- A [paper](#) by six scientists.
- *"Biologically realistic numerical simulations revealed that a population of this type required inordinately long waiting times to establish even the shortest nucleotide strings. To establish a string of two nucleotides required on average 84 million years. To establish a string of five nucleotides required on average 2 billion years. We found that waiting times were reduced by higher mutation rates, stronger fitness benefits, and larger population sizes. However, even using the most generous feasible parameters settings, the waiting time required to establish any specific nucleotide string within this type of population was consistently prohibitive."* -- "The waiting time problem in a model hominin population," a paper by several scientists discussing prohibitive odds against genetic innovation in an evolving ape-like or man-like species ([link](#)).
- *"Little is known on how the complexity of multicellular organisms evolved by elaborating developmental programs and inventing new cell types."* -- Two scientists, 2021 ([link](#)).
- *"The most fascinating thing about eukaryotes is that we still don't understand how they came about."* -- Evolutionary biologist Toni Gabaldon, referring to the type of cells found in human bodies ([link](#)).

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- "When you look at the narrative for hominin origins, it's just a big mess -- there's no consensus whatsoever." -- Sergio Almécija, a senior research scientist in the American Museum of Natural History's Division of Anthropology ([link](#)).
- "We know few of the principles that explain the ability of living things to innovate through a combination of natural selection and random genetic change. Random change by itself is not sufficient, because it does not necessarily bring forth beneficial phenotypes. For example, random change might not be suitable to improve most man-made, technological systems. Similarly, natural selection alone is not sufficient: As the geneticist Hugo de Vries already noted in 1905, 'natural selection may explain the survival of the fittest, but it cannot explain the arrival of the fittest.'" -- Biologist Andreas Wagner ([link](#)).

### The Low Evidence for Adaptive Evolution in Humans

- "There is little evidence of widespread adaptive evolution in our own species...Hominids appear to have undergone very little adaptive evolution." -- Biologist Adam Eyre Walker, 2006, "[The Genomic Rate of Adaptive Evolution](#)."
- "Our overall estimate of the fraction of fixed adaptive substitutions ( $\alpha$ ) in the human lineage is very low, approximately 0.2%, which is consistent with previous studies." -- A paper by scientists finding that only 1 gene in 500 showed signs of being promoted by so-called "natural selection" ([link](#)).
- "The sad truth is that it is possible to count on the fingers of two hands the examples like *FOXP2* of mutations that increased in frequency in human ancestors under the pressure of natural selection and whose functions we partly understand." -- *Who We Are and How We Got Here* by David Reich, a professor of genetics at Harvard Medical School, page 9.
- "The proportion of PSGs [positively selected genes] in the genome is  $233/13,888 = 1.7\%$  for the chimp lineage, significantly greater than that ( $154/13,888 = 1.1\%$ ) for the human lineage ( $P < 10^{-4}$ ,  $\chi^2$  test). Because 13,888 statistical tests were conducted for each lineage, it is necessary to control for multiple testing. Under Bonferroni correction, two human genes and 21 chimp genes remain statistically significant (see SI Table 8). ....In sharp contrast to common belief, there were more adaptive genetic changes during chimp evolution than during human

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evolution." -- Paper by scientists finding good evidence for "positive selection" in only two out of roughly 20,000 genes ([link](#)).

## The Study of Human Origins

- *"The study of human prehistory attracts the most ambitious and, as one member of the discipline put it to me, 'the most psychotic', palaeontologists.... Our direct knowledge of the first few million years of human evolution derives from a collection of bone fragments that could no more than halfway fill a large shoebox....Attempting to reconstruct the history of early humanity from the available evidence is, it has been said, akin to trying to divine the plot of War and Peace from just 13 of its pages, picked at random." -- Year 2025 article in The Guardian, a materialist-leaning newspaper ([link](#)).*

## Macroevolution

- *"The origins of major morphological novelties remain unsolved...No one has satisfactorily demonstrated a mechanism at the population genetic level by which innumerable very small phenotypic changes could accumulate rapidly to produce large changes: a process for the origin of the magnificently improbable from the ineffably trivial." Keith Stewart Thomson, "[Macroevolution: The Morphological Problem](#)"*
- *"Selection based on survival of the fittest is insufficient for other than microevolution. Realistic probability calculations based on probabilities associated with microevolution are presented. However, macroevolution (required for all speciation events and the complexifications appearing in the Cambrian explosion) are shown to be probabilistically highly implausible (on the order of  $10^{-50}$ ) when based on selection by survival of the fittest. We conclude that macroevolution via survival of the fittest is not salvageable by arguments for random genetic drift and other proposed mechanisms...Evolution of a few flowers on a hillside is reasonably explained by mutation and selection; it stretches logic to explain the millions of extremely diverse species seen currently and in the fossil record...Microevolution is probabilistically realistic; macroevolution is not, and this is*

- [disasters](#) (1)
- [disease prevention](#) (1)
- [disintegrating asteroid](#) (1)
- [DNA](#) (24)
- [DNA divergence of humans and chimpanzees](#) (1)
- [dogs](#) (1)
- [double standards in science](#) (3)
- [doubt](#) (1)
- [dowsing](#) (1)
- [dreams](#) (22)
- [drones](#) (1)
- [DUNE](#) (1)
- [dwarf galaxies](#) (1)
- [dwarf galaxy rotation anomaly](#) (1)
- [dystopia](#) (1)
- [early habitability epoch](#) (1)
- [early Universe](#) (2)
- [earthlights](#) (1)
- [easy life hypothesis](#) (3)
- [education](#) (3)
- [elections](#) (1)
- [electromagnetic pulse attack](#) (1)
- [electromagnetism](#) (4)
- [electrons](#) (3)
- [EmDrive](#) (1)
- [emergence](#) (1)
- [EMP](#) (1)
- [end of the world](#) (5)
- [energy crisis](#) (3)
- [energy forecast](#) (1)
- [energy production](#) (2)
- [engrams](#) (12)
- [entropy](#) (3)
- [environmental degradation](#) (5)
- [epigenetics](#) (1)
- [ESP](#) (74)
- [esthetics](#) (1)
- [Ethics](#) (10)
- [Europa](#) (2)
- [evolution](#) (86)
- [evolution poll](#) (1)
- [experts](#) (12)
- [extended evolutionary synthesis](#) (1)
- [extent of Darwinist belief](#) (1)
- [extent of paranormal abilities](#) (1)
- [extent of paranormal beliefs](#) (2)

documented empirically." -- Olen R. Brown and David A. Hullender, "Neo-Darwinism must Mutate to survive," 2022, ([link](#)).

## Evolutionary Biology

- "The central premise of this commentary is that racism in America as it is manifested in higher education (specifically evolutionary biology) creates a culturally non-inclusive environment that systematically disadvantages persons of non-European descent." -- Biology Joseph L. Graves Jr, "[African Americans in evolutionary science: where we have been, and what's next](#)"
- "Darwinism is not a testable scientific theory, but a **metaphysical research programme**." -- Philosopher of science Karl Popper ([link](#)).

## Evolutionary Biologists

"In discussions with biologists I met large difficulties when they apply the concept of 'natural selection' in a rather wide field, without being able to estimate the probability of the occurrence in a empirically given time of just those events, which have been important for the biological evolution. Treating the empirical time scale of the evolution theoretically as infinity they have then an easy game, apparently to avoid the concept of purposesiveness. While they pretend to stay in this way completely 'scientific' and 'rational', they become actually very irrational, particularly because they use the word 'chance', not any longer combined with estimations of a mathematically defined probability, in its application to very rare single events more or less synonymous with the old word 'miracle'." -- Eminent physicist Wolfgang von Pauli, discoverer of the biologically crucial Pauli Exclusion Principle ([link](#)).

## Weakness of the Fossil Record

- "Nowhere in the world has any recognizable trace been found of an animal that would close the considerable structural gap between *Hyracotherium* and the most likely ancestral order, the Condylarthra. **This is true for all of the thirty-two orders of mammals**, and in most cases the break in the record is still more striking....**The earliest and most primitive known members of every order already have the most basic ordinal characters and in no case is an approximately continuous sequence from one order to another known.** In most cases the break is so sharp and the gap so large that the origin of the

- extent of paranormal experience (3)
- [exteriorization of sensibility](#) (1)
- [extrasolar planets](#) (8)
- [extraterrestrial life](#) (58)
- [extraterrestrials](#) (36)
- [faint young sun paradox](#) (3)
- [fast radio bursts](#) (1)
- [fate of the universe](#) (1)
- [Fermi's paradox](#) (8)
- [fine-tuned universe](#) (7)
- [Flynn effect](#) (1)
- [forecasting](#) (1)
- [Fourth Dimension](#) (1)
- [free will](#) (3)
- [functional threshold](#) (2)
- [fundamental constants](#) (6)
- [fundamental forces](#) (5)
- [funerals](#) (1)
- [future contrasts](#) (2)
- [future entertainment](#) (2)
- [future eras](#) (1)
- [future happiness](#) (2)
- [future movies](#) (1)
- [future of consciousness](#) (2)
- [future of man](#) (19)
- [future problems](#) (4)
- [future risks](#) (2)
- [future technology](#) (11)
- [future weapons](#) (1)
- [futurology](#) (2)
- [galactic empire](#) (1)
- [galaxies](#) (7)
- [galaxy formation](#) (7)
- [galaxy spin anomaly](#) (1)
- [gamma ray bursts](#) (2)
- [gaslighting](#) (1)
- [genes](#) (17)
- [genetic engineering](#) (17)
- [genetics](#) (13)
- [geoengineering](#) (2)
- [ghosts](#) (29)
- [global consciousness project](#) (2)
- [global food supply](#) (5)
- [global organizing activity of a life-force \(GOAL\)](#) (4)
- [global risks](#) (1)
- [global warming](#) (22)
- [GMO](#) (3)
- [God](#) (2)

order is speculative and much disputed." -- George Gaylord Simpson (a leading paleontologist), "Tempo and Mode in Evolution," [page 106](#).

- **"The absence of fossil evidence for intermediary stages between major transitions in organic design, indeed our inability, even in our imagination, to construct functional intermediates in many cases, *has been a persistent and nagging problem for gradualistic accounts of evolution.*"** -- Stephen Jay Gould, a leading paleontologist, "Evolution Now: A Century After Darwin," [page 140](#), 1983.
- *"The published hominin fossil record does not yet have a true intermediate stage between an apelike and a humanlike body."* -- Anthropology professor Henry M. McHenry, "Evolution: The First Four Billion Years," page 270.
- *"No fossil is buried with its birth certificate. That, and the scarcity of fossils, means that it is effectively impossible to link fossils into chains of cause and effect in any valid way, whether we are talking about the extinction of dinosaurs, or chains of ancestry and descent."* -- Evolutionary biologist Henry Gee ([link](#)).
- *"Fossil evidence of human evolutionary history is fragmentary and open to various interpretations. Fossil evidence of chimpanzee evolution is absent altogether."* -- Evolutionary biologist Henry Gee, article in the journal Nature ([link](#)).
- *"The idea that one can go to the fossil record and expect to empirically recover an ancestor-descendant sequence, be it of species, genera, families or whatever, has been, and continues to be, a pernicious illusion, responsible, in my opinion, for much of the current confusion within the field of comparative biology."* -- Paleontologist Gareth Nelson ([link](#)).
- *"To take a line of fossils and claim that they represent a lineage is not a scientific hypothesis that can be tested, but an assertion the carries the same validity as a bedtime story -- amusing, perhaps even instructive, but not scientific."* -- Evolutionary biologist Henry Gee ([link](#)).
- *"Countries where fossil fakes are common include Peru, Colombia, Russia, USA, Germany, France, and (especially) Morocco and China. The biggest markets for these fakes are in the USA, Morocco and China. The US market is also the leader in the trade of fakes and the Internet provides a ready source for them."*

- [gradualism](#) (2)
- [grand unification theories](#) (1)
- [Great Filter](#) (2)
- [grey goo](#) (1)
- [groupthink](#) (6)
- [habitable zone](#) (1)
- [hallucinogenic drugs](#) (1)
- [happiness](#) (1)
- [heart attack risk](#) (1)
- [heritability of intelligence](#) (1)
- [hierarchy problem](#) (1)
- [Higgs mass](#) (1)
- [higher dimension](#) (1)
- [holographs](#) (1)
- [homeopathy](#) (2)
- [homochirality](#) (2)
- [homosexuality](#) (3)
- [how to test telepathy using family members](#) (1)
- [human body plan](#) (1)
- [human extinction](#) (2)
- [human history](#) (1)
- [human intelligence](#) (4)
- [human knowledge](#) (1)
- [hurricanes](#) (1)
- [hypermnesia](#) (1)
- [hyperthymesia](#) (2)
- [hypnotic trance](#) (17)
- [idealism](#) (4)
- [ideological regimes](#) (1)
- [immortality](#) (3)
- [inflation theory](#) (6)
- [information](#) (1)
- [integrated information theory](#) (1)
- [intelligent design](#) (2)
- [interplanetary travel](#) (1)
- [interstellar colonization](#) (3)
- [interstellar communication](#) (1)
- [interstellar travel](#) (9)
- [Iraq war](#) (1)
- [K2-18 b](#) (1)
- [Kepler Space Telescope](#) (2)
- [Kepler-78b](#) (1)
- [ketamine](#) (1)
- [Kirlian photography](#) (1)
- [lambda cold dark matter theory](#) (5)
- [language acquisition](#) (2)
- [Large Hadron Collider](#) (2)
- [laws of nature](#) (6)

*Sale and auction websites on the Internet are an ideal way for selling fake fossils. Other outlets for selling fake fossils are the numerous mineral and fossil fairs organised around the world, and the more important the fair, the larger the number of fakes.... An important fact to emphasise is that, since China became open to commerce, fakes have increased by more than 500% as a result of the massive demand for Chinese fossils. The variety and magnitude of Chinese fake fossils is endless. They include every kind of forgery, from fakes made of pieces of different specimens (dinosaurs, turtles and crocodiles), to copies made completely of plaster (turtles, crocodiles and sabre-toothed cat skulls)." -- Two natural history museum curators ([link](#)).*

- *"I have recently come to realize that the assumed evidence for common descent becomes much less convincing the closer you look into the details....According to the most recent and most comprehensive studies, the previous decades of phylogenetic trees, evolutionary scenarios, and reconstructed ancestors (ground plans) would all be utterly incorrect....Evolutionary biology is a state of disarray. Something is clearly and profoundly off the mark and conflicting with any expectations from Darwinian theory. I can only urge my colleagues to stop closing their eyes, only because of world view blinders, and recognize the obvious need for a paradigm change, because we have just scratched the surface of the problems." -- Paleontologist Günter Bechly ([link](#)).*

### Neo-Darwinism (the "Modern Synthesis")

- *"I found that neo-Darwinism doesn't work very well as a description of real life. **Several big things about life in general just don't add up in the context of neo-Darwinism:** There's aging and death -- I'll try to show you in the coming chapters why I don't think you can account for the basic facts about aging within the framework of neo-Darwinism. But in addition, **neo-Darwinism can't account for sexual reproduction or for the structure of the genome that seems actually 'designed' to make evolution possible**; neo-Darwinism also does not have a place for the recently established phenomena of epigenetic inheritance or horizontal gene transfer." -- biologist Josh Mittleldorf PhD, "Cracking the Aging Code," page 31.*

- [LCDM theory](#) (1)
- [leisure](#) (1)
- [levitation](#) (21)
- [life after death](#) (72)
- [life extension](#) (8)
- [Long Baseline Neutrino Experiment](#) (1)
- [Mad Scientist](#) (1)
- [Many Worlds theory](#) (6)
- [Mars](#) (18)
- [Mars lights](#) (4)
- [Mars strange objects](#) (8)
- [materialism](#) (8)
- [materialism as religion](#) (2)
- [materialization](#) (11)
- [mathematical universe hypothesis](#) (1)
- [mathematics](#) (2)
- [matter antimatter asymmetry](#) (1)
- [meat consumption](#) (1)
- [medical care in old age](#) (1)
- [medical technology](#) (2)
- [mediums](#) (33)
- [mega-tsunami](#) (1)
- [memory](#) (44)
- [memory implant](#) (1)
- [memory retrieval](#) (4)
- [memory traces](#) (16)
- [mental differences between animals and humans](#) (1)
- [meta-analysis](#) (1)
- [meteor](#) (1)
- [methodological naturalism](#) (1)
- [Miller-Urey experiment](#) (1)
- [mind](#) (7)
- [mind linking](#) (1)
- [mind over matter](#) (6)
- [mind uploading](#) (5)
- [mind-reading](#) (4)
- [miracles](#) (2)
- [missing heritability problem](#) (1)
- [missing specifications problem](#) (1)
- [misspeaking scientists](#) (1)
- [molecular biology](#) (8)
- [molecular machinery](#) (2)
- [MOND](#) (1)
- [morphic gravitation](#) (1)
- [morphogen gradient](#) (1)
- [morphogenesis](#) (20)

- "Natural selection cannot be observed in the wild, because it requires huge areas and thousands of years...But **evolutionary biology today is a uniquely sick science**, missing the vibrancy, the audacity, and the commitment to empirical truth that form the core of the scientific method." -- biologist Josh Mitteldorf PhD and Dorion Sagan, "Cracking the Aging Code," page 84.
- "In this article, I will show that all the central assumptions of the Modern Synthesis (often also called Neo-Darwinism) have been disproved." -- Biologist Denis Noble, "[Physiology is rocking the foundations of evolutionary biology](#)."
- "The OMS [original Modern Synthesis] is a clever theory when considered as a special case, but proposing it as a master theory was premature, and claiming that it was established empirically was an exaggeration bordering on delusion." --biologist Arlin Stoltzfus, "[Why We Don't Want Another 'Synthesis.'](#)"
- "There is a growing sense of unease among biologists that there are serious shortcomings in the Neo-Darwinian framework, in particular that several of its central assumptions are wrong and that, as a result, it lacks explanatory power. The problems are many and likely fatal." -- Four scientists, "The CBC theory and its entailments," ([link](#)).
- "It is now evident that genes play only a minor role in evolution....We now know that the gene-centered Modern Synthesis was quite wrong (see especially Shapiro 2011, 2022; Noble 2012, 2013; Noble and Noble 2023; Corning 2018, 2020). Over the past few decades there has been a growing body of contradictory evidence." -- Scientist Peter A. Corning, "Cooperative genes in smart systems: Toward an inclusive new synthesis in evolution" ([link](#)).

## Natural Selection

- "In the literal sense of the word, no doubt, natural selection is a false term." -- Charles Darwin, The Origin of Species, 1869 Edition, [page 92](#).
- "I suppose 'natural selection' was a bad term ; but to change it now, I think, would make confusion worse confounded." -- Charles Darwin, [a letter to Charles Lyell dated June 6, 1860](#).
- "There is no actual selection carried out by natural 'selection'. Nature – in this case the different rates of

- [multiverse](#) (28)
- [mutations](#) (1)
- [mysterious raps](#) (10)
- [mystery of existence](#) (1)
- [nanotechnology](#) (1)
- [NASA](#) (14)
- [natural history](#) (4)
- [natural history museums](#) (1)
- [natural selection](#) (31)
- [naturalism](#) (2)
- [nature](#) (2)
- [near death experience](#) (31)
- [near-death experience](#) (2)
- [Neptune](#) (1)
- [neuroscience](#) (51)
- [neutrino](#) (2)
- [neutron](#) (1)
- [neutron stars](#) (1)
- [Nobel Prize](#) (3)
- [non-local consciousness](#) (1)
- [nonearthly pre-existence of the soul](#) (1)
- [nonneuralism](#) (1)
- [nuclear energy](#) (2)
- [nuclear war](#) (5)
- [nuclear weapons](#) (1)
- [nucleosynthesis](#) (3)
- [observer selection effect](#) (1)
- [ocean acidification](#) (1)
- [oceanic dispersal](#) (1)
- [optogenetics](#) (1)
- [orbs](#) (21)
- [organelles](#) (1)
- [origin of biological complexity](#) (38)
- [origin of elements](#) (2)
- [origin of flying animals](#) (3)
- [origin of genes](#) (2)
- [origin of genetic code](#) (1)
- [origin of language](#) (7)
- [origin of life](#) (51)
- [origin of man](#) (16)
- [origin of Mind](#) (15)
- [origin of multicellular life](#) (2)
- [origin of protein complexes](#) (1)
- [origin of proteins](#) (3)
- [origin of sex](#) (1)
- [origin of sexual reproduction](#) (1)
- [origin of universe](#) (2)
- [out-of-body experience](#) (12)

survival – is simply a passive filter." -- Biologist Denis Noble, ["The Illusions of the Modern Synthesis."](#)

- "Natural selection can explain much about why species are the way they are, but it does not necessarily offer a specific explanation for human intellectual powers, much less any sort of basis for confidence in the reliability of science." -- Biologist Austin L. Hughes, ["The Folly of Scientism."](#)
- "Natural selection has been shown to have occurred (for example, among populations of Darwin's finches), but there is no evidence that it accumulates over longer periods of time to produce speciation in the Darwinian sense." Cambridge University biology professor K. D. Bennett, *Evolution and Ecology: The Pace of Life*, page 75.
- "Natural selection is a sieve. It creates nothing, as is so often assumed; it only sifts." -- Botanist Hugo de Vries, "The Mutation Theory. Volume II, [page 609](#)."
- "Natural Selection could only have endowed savage man with a brain a little superior to that of an ape, whereas he actually possesses one very little inferior to that of a philosopher." -- Alfred Russel Wallace, co-founder of the theory of evolution by natural selection, ["The Limits of Natural Selection as Applied to Man."](#)
- "'Natural Selection,' simply and by itself, is potent to explain the maintenance or the further extension and development of favorable variations, which are at once sufficiently considerable to be useful from the first to the individual possessing them. But **Natural Selection utterly fails to account for the conservation and development of the minute and rudimentary beginnings, the slight and infinitesimal commencements of structures, however useful those structures may afterward become.**" -- Biologist St. George Mivart, "On The Genesis of Species," Chapter II, 1871 ([link](#)).
- "Rather than emerging gradually, a few at a time, the evidence presented in these four papers suggests the occurrence of punctuated bursts. At every major phylogenetic node that was examined, the appearance of hundreds, and in some cases thousands, of novel homology groups was detected. **Evolution by bursts is, of course, not expected if natural selection is the main driver....The fossil record depicts the appearance of the first angiosperms as a sudden event, with no clear**

- [overblown hype](#) (67)
- [overconfidence](#) (9)
- [overconsumption](#) (9)
- [overpopulation](#) (9)
- [overshoot and collapse](#) (1)
- [p-hacking](#) (1)
- [P/2013 R3](#) (1)
- [paleontology](#) (8)
- [pandemic](#) (2)
- [panpsychism](#) (4)
- [panspermia](#) (4)
- [paradoxes](#) (1)
- [parallel universes](#) (3)
- [paranormal healing](#) (2)
- [paranormal phenomena](#) (242)
- [paranormal writing](#) (1)
- [paraverse](#) (2)
- [pareidolia](#) (2)
- [particle collisions](#) (1)
- [particle physics](#) (15)
- [peak coal](#) (3)
- [peak oil](#) (5)
- [peer review](#) (1)
- [phantom events](#) (1)
- [philosophical zombie](#) (1)
- [philosophy](#) (33)
- [philosophy of mind](#) (20)
- [philosophy of science](#) (3)
- [photography](#) (2)
- [phylogenetics](#) (1)
- [physicalism](#) (2)
- [physics](#) (22)
- [pigs](#) (1)
- [planetoids](#) (1)
- [plant intelligence](#) (1)
- [Platonism](#) (1)
- [polls](#) (1)
- [pollution](#) (4)
- [poltergeist](#) (2)
- [polygamy](#) (1)
- [pork eating](#) (1)
- [post-scarcity economy](#) (1)
- [pre-1975 near-death experience](#) (15)
- [pre-1975 out-of-body experience](#) (1)
- [precognition](#) (26)
- [predictions](#) (4)
- [primordial fluctuations](#) (1)
- [primordial singularity](#) (1)
- [problem of evil](#) (6)

**progenitors...** *The nodes at the origin of the angiosperms are certainly striking in terms of the total number of novel genes that seem to have appeared in a short space of time....*

*It seems that vast numbers of existing genes are jettisoned and replaced by entirely different ones. Such processes would represent a radical overhaul in the genetic composition of organisms. How this might be accomplished is another mystery.*" -- "[The Origin of Novel Genes](#)," Richard Buggs, Professor of Evolutionary Genomics at Queen Mary University of London.

- *"It seems doubtful whether any organ having the function of a foot or of a hand could be changed by a gradual process into a wing, without passing through an intermediate state, in which it would be inefficient for either purpose ; — and such a change would be immediately detrimental, and could not be effected by natural selection."* --Joseph John Murphy, biology scholar, author of a massive biology tome ([link](#)).
- *"It is well known that the instincts of animals are as innumerable as they are marvelous. They have in common the characteristic that they allow the creature to act spontaneously, without reasoned thought, without hesitation or groping, and to attain the desired end with a certainty with which neither reason, nor training, nor impulse, can compare....**Now the origin of instincts is no more explicable by natural selection or by the influence of the environment than the formation of species.**"* Gustave Geley, physician and mind researcher ([link](#)).

## The Origin of Protein Molecules

- *"A wide variety of protein structures exist in nature, however the evolutionary origins of this panoply of proteins remain unknown."* -- Four Harvard scientists, "[The role of evolutionary selection in the dynamics of protein structure evolution](#)."
- *"Tawfik admits the issue of a first protein is 'a complete mystery' because it reveals a paradox: enzymatic function depends upon the well-defined, three-dimensional structure of a protein scaffold, yet the 3D structure is too complex, too intricate, and too coordinated to arise without simpler precursors*

- [prognostication](#) (2)
- [programmed material universe](#) (8)
- [protein complexes](#) (1)
- [protein complexity](#) (3)
- [protein evolution](#) (5)
- [protein folding](#) (9)
- [protein localization](#) (1)
- [protein molecules](#) (7)
- [protein sensitivity](#) (1)
- [psychiatry](#) (1)
- [psychokinesis](#) (8)
- [psychology experiments](#) (1)
- [psychometry](#) (5)
- [pulsars](#) (1)
- [qigong](#) (2)
- [quantum biology](#) (3)
- [quantum computer universe](#) (1)
- [quantum gravity](#) (1)
- [quantum mechanics](#) (7)
- [quasar polarization vector alignments](#) (1)
- [quasars](#) (1)
- [questionable research practices](#) (3)
- [racism](#) (1)
- [radical abundance](#) (1)
- [random universes](#) (2)
- [randomness](#) (2)
- [receptacle theory of consciousness](#) (3)
- [recolonization of Earth](#) (1)
- [recommended books](#) (15)
- [Reddit](#) (1)
- [reductionism](#) (6)
- [reincarnation](#) (6)
- [rejuvenation](#) (3)
- [remote viewing](#) (7)
- [replication crisis](#) (5)
- [requirements underestimation](#) (6)
- [resource depletion](#) (5)
- [retroognition](#) (1)
- [RNA world hypothesis](#) (1)
- [robotics](#) (3)
- [robots](#) (14)
- [rogue planet](#) (1)
- [savants](#) (4)
- [scarcity](#) (1)
- [science and ethics](#) (3)
- [science and religion](#) (2)
- [science education](#) (1)

and intermediates....Tawfik soberly recognizes the problem. The appearance of early protein families, he has remarked, is 'something like close to a miracle.'....'In fact, to our knowledge,' Tawfik and Tóth-Petróczy write, 'no macromutations ... that gave birth to novel proteins have yet been identified.' " -- Tyler Hampton, quoting Dan S. Tawfik, professor in a Department of Biological Chemistry ([link](#)).

- "We have addressed a large body of evidence related to transitions (micro- and macro-) in proteins that have a pre-existing globular 3D-structure (and function), but how does structure and function evolve in de novo [new] proteins? ...Overall, the evolution of MIPSs, the recruitment of first enzymes, and de novo emergence of proteins are aspects where **our knowledge is still at infancy**. -- Scientists confessing in 2022 that we don't know how new proteins originate ([link](#)).

### The Fragility of Fine-Tuned Protein Molecules

- "It seems clear that even the smallest change in the sequence of amino acids of proteins usually has a deleterious effect on the physiology and metabolism of organisms." -- Evolutionary biologist Richard Lewontin, "The triple helix : gene, organism, and environment," [page 123](#).
- "Proteins are so precisely built that the change of even a few atoms in one amino acid can sometimes disrupt the structure of the whole [molecule](#) so severely that all function is lost." -- Science textbook "[Molecular Biology of the Cell](#)."
- "To quantitate protein tolerance to random change, it is vital to understand the probability that a random amino acid replacement will lead to a protein's functional inactivation. We define this probability as the 'x factor.' ...The x factor was found to be 34% ± 6%." -- 3 scientists, "[Protein tolerance to random amino acid change](#)."
- "Once again we see that proteins are fragile, are often only on the brink of stability." -- Columbia University scientists Lawrence Chasin and Deborah Mowshowitz, "Introduction to Molecular and Cellular Biology," [Lecture 5](#).
- "We predict 27–29% of amino acid changing (nonsynonymous) mutations are neutral or nearly

- [science fiction](#) (111)
- Science fiction stories (127)
- [science fiction story](#) (124)
- science journalism (22)
- [science textbooks](#) (1)
- [scientific authoritarianism](#) (2)
- [scientific consensus](#) (4)
- [scientific ethics](#) (2)
- [scientific explanation](#) (2)
- [scientific explanations](#) (7)
- [scientific fraud](#) (1)
- [scientific literature](#) (2)
- [scientific process](#) (8)
- [scientific speculation](#) (9)
- [scientific theories](#) (6)
- [scientific theory](#) (5)
- [scientific thinking](#) (1)
- [scientism](#) (1)
- [scientist flubs and flops \(image series\)](#) (8)
- scientist misconduct (10)
- [scientist overconfidence](#) (1)
- [scientist recklessness](#) (1)
- [scientist specialization](#) (1)
- [scientist subculture](#) (2)
- [self](#) (1)
- [self-consciousness](#) (2)
- [sensationalism](#) (1)
- [sensitivity of proteins](#) (1)
- SETI (19)
- [sex](#) (1)
- [sexism](#) (1)
- [shared death experience](#) (2)
- [shopping](#) (1)
- [short radio bursts](#) (1)
- [simulated universe](#) (6)
- [Singularity](#) (8)
- [skepticism](#) (9)
- slate writing (2)
- [slavery](#) (1)
- [sleepwalking](#) (2)
- [social media](#) (1)
- [social security](#) (1)
- [social trends](#) (1)
- [sociology of science](#) (25)
- [software development](#) (5)
- [solar flares](#) (1)
- [solar system](#) (1)
- [soul](#) (4)
- [space colonization](#) (2)
- [space exploration](#) (3)

neutral ( $|s| < 0.01\%$ ), 30–42% are moderately deleterious ( $0.01\% < |s| < 1\%$ ), and nearly all the remainder are highly deleterious or lethal ( $|s| > 1\%$ ).” --

"Assessing the Evolutionary Impact of Amino Acid Mutations in the Human Genome," a scientific [paper](#) by 14 scientists.

- "An analysis of 8,653 proteins based on single mutations (Xavier et al., 2021) shows the following results: ~68% are destabilizing, ~24% are stabilizing, and ~8,0% are neutral mutations...while a similar analysis from the observed free-energy distribution from 328,691 out of 341,860 mutations (Tsuboyama et al., 2023)...indicates that ~71% are destabilizing, ~16% are stabilizing, and ~13% are neutral mutations, respectively." -- scientist Jorge A. Villa, "[Analysis of proteins in the light of mutations](#)," 2023.
- "Proteins are intricate, dynamic structures, and small changes in their amino acid sequences can lead to large effects on their folding, stability and dynamics. To facilitate the further development and evaluation of methods to predict these changes, we have developed ThermoMutDB, a manually curated database containing >14,669 experimental data of thermodynamic parameters for wild type and mutant proteins... Two thirds of mutations within the database are destabilising." -- Eight scientists, "[ThermoMutDB: a thermodynamic database for missense mutations](#)," 2020.

## Protein Folding

- "In real time how the chaperones fold the newly synthesized polypeptide sequences into a particular three-dimensional shape within a fraction of second is still a mystery for biologists as well as mathematicians." -- Arun Upadhyay, "[Structure of proteins: Evolution with unsolved mysteries](#)," 2019.
- "**The problem of protein folding is one of the most important problems of molecular biology.** A central problem (the so called Levinthal's paradox) is that the protein is first synthesized as a linear molecule that must reach its native conformation in a short time (on the order of seconds or less). The protein can only perform its functions in this (often single) conformation. The problem, however, is that the number of possible conformational states is exponentially large for a long protein molecule. Despite almost 30 years of attempts to resolve this paradox, **a solution has not yet**

- [space station](#) (2)
- [spirit photography](#) (1)
- [spiritism](#) (1)
- [spiritual manifestations](#) (23)
- [spiritualism](#) (19)
- [sports of the future](#) (1)
- [STARGATE program](#) (1)
- [starships](#) (1)
- [stem cells](#) (1)
- [string theory](#) (8)
- [subsidies](#) (1)
- [sun](#) (1)
- [supercomputer](#) (3)
- [superintelligence](#) (7)
- [supermen](#) (2)
- [supernovae](#) (2)
- [superstition](#) (1)
- [supersymmetry](#) (11)
- [surveillance state](#) (1)
- [synapse theory of memory](#) (7)
- [synchronicity](#) (1)
- [syncing speech in twins](#) (1)
- [table turning](#) (5)
- [taxes](#) (1)
- [technological innovations](#) (1)
- [telekinesis](#) (1)
- [teleology](#) (12)
- [teleophobia](#) (1)
- [telepathy](#) (14)
- [teleportation](#) (5)
- [theism](#) (3)
- [theories of mind](#) (7)
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- [theories of time](#) (3)
- [theories of truth](#) (1)
- [theory of accelerating progress](#) (1)
- [theory of consciousness](#) (8)
- [things science cannot explain](#) (5)
- [third man factor](#) (1)
- [time dilation](#) (1)
- [time travel](#) (3)
- [tininess of human knowledge](#) (21)
- [top-down theory of mind](#) (1)
- [trance phenomena](#) (2)
- [transfiguration](#) (1)
- [Transhumanism](#) (4)
- [transposition of the senses](#) (8)

**been found.**" -- Two scientists, "[On a generalized Levinthal's paradox](#)," 2018.

## The Formation of Protein Complexes

- *"The majority of cellular proteins function as subunits in larger protein complexes. However, **very little is known about how protein complexes form in vivo**."* Duncan and Mata, "[Widespread Cotranslational Formation of Protein Complexes](#)," 2011.
- *"While the occurrence of multiprotein assemblies is ubiquitous, the understanding of pathways that dictate the formation of quaternary structure remains enigmatic."* -- Two scientists ([link](#)).
- *"A general theoretical framework to understand protein complex formation and usage is still lacking."* -- Two scientists, 2019 ([link](#)).
- *"Most proteins associate into multimeric complexes with specific architectures, which often have functional properties like cooperative ligand binding or allosteric regulation. No detailed knowledge is available about how any multimer and its functions arose during historical evolution."* -- Ten scientists, 2020 ([link](#)).
- *"Protein assemblies are at the basis of numerous biological machines by performing actions that none of the individual proteins would be able to do. There are thousands, perhaps millions of different types and states of proteins in a living organism, and the number of possible interactions between them is enormous...The strong synergy within the protein complex makes it irreducible to an incremental process. They are rather to be acknowledged as fine-tuned initial conditions of the constituting protein sequences. These structures are biological examples of nano-engineering that surpass anything human engineers have created. Such systems pose a serious challenge to a Darwinian account of evolution, since irreducibly complex systems have no direct series of selectable intermediates, and in addition, as we saw in Section 4.1, each module (protein) is of low probability by itself."* -- Steinar Thorvaldsen and Ola Hössjerm, "[Using statistical methods to model the fine-tuning of molecular machines and systems](#)," Journal of Theoretical Biology.

## Scientist Hubris

- [Twitter](#) (1)
- [types of universes](#) (2)
- [UAP](#) (4)
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- [UFOs](#) (25)
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- [wormhole](#) (1)
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*"How did science become so unscientific? To make a long story short, we have been sold a triple pseudo-intellectual flimflam for decades: if you want to be a respectable homo academicus, then you must embrace the unholy trinity of mechanistic reductive materialism, plus skepticism in its most dogmatic declination, and finally secularism in the mode of viciously naive atheism. In a word, scientism has been institutionalized in the name of science. But, in the end, scientism is more dangerous than pseudoscience because it is an inside job. Error, bias, and hype are minor sins compared to scientific hubris....Future scientists are the most indoctrinated of all, since most check-points in the stairway to academic heaven –from undergraduate students to postdoctoral researchers to tenured professors– select for such failings and implant us with an operating system stuck in our 19th century understanding of the world. The problem is deep, as it is entrenched in the triangular industrial complexes of academia, journalism, and education. In sum, scientific televangelism is alienating genuine truth-seekers, eroding public trust in science, and indoctrinating young minds. Let us reject such terms of disservice and reverse the dead-ending of science from within and without. The truth is that true experts don't know 'the truth.' Nobody really knows what is going on. We live in a wild, weird, wonderful world....Preaching dogma in the name of science is a dagger at the heart of society." -- Àlex Gómez-Marín, physicist and neuroscientist ([link](#)).*

### **The Willingness of Scientists to Defend Patently Absurd Claims**

*"Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door." -- Richard Lewontin, evolutionary biologist ([link](#)).*

### **Developmental Biology and Morphogenesis**

- "Yet while these are several examples of well-understood processes, our study of animal morphogenesis is really in its infancy." -- David Bilder and Saori L. Haigo<sup>1</sup>, "[Expanding the Morphogenetic Repertoire: Perspectives from the Drosophila Egg.](#)"
- "Fundamentally, we have a poor understanding of how any internal organ forms." -- Timothy Saunders, developmental biologist ([link](#)).
- "An adult human body is made up of some 30 to 40 trillion cells, all of which stem from a single fertilized egg cell. The process by which the right cells appear to arrive in their right numbers at the right time at the right place -- development -- is only understood in the roughest of outlines." -- Five scientists ([link](#)).
- "Biochemistry cannot provide the spatial information needed to explain morphogenesis...Supracellular morphogenesis is mysterious...Nobody seems to understand the origin of biological and cellular order." -- Six medical authorities ([link](#)). "
- "Understanding the rules underlying organismal development is a major unsolved problem in biology. Each cell in a developing organism responds to signals in its local environment by dividing, excreting, consuming, or reorganizing, yet how these individual actions coordinate over a macroscopic number of cells to grow complex structures with exquisite functionality is unknown." - Five scientists ([link](#)).

### Biological Complexity and Biological Organization

- "On the physical level, biological creatures are so much more complex in a functional way than current artifacts of our technology that there's almost no comparison. **The most elaborate and sophisticated human-designed machines, while quite impressive, are utter child's play compared with the workings of a cell:** a cell contains on the order of 100 trillion atoms, and probably billions of quite complex molecules working with amazing precision. The most complex engineered machines -- modern jet aircraft, for example -- have several million parts. **Thus, perhaps all the jetliners in the world (without people in them, of course) could compete in functional complexity with a lowly bacterium.**" --physicist Anthony Aquirre, "Cosmological Koans," page 338.
- "A molecular machine (or 'nanomachine') is a mechanical device that is measured in nanometers

(millionths of a millimeter, or units of  $10^{-9}$  meter; on the scale of a single molecule) and converts chemical, electrical or optical energy to controlled mechanical work [1,2]. **The human body can be viewed as a complex ensemble of nanomachines** [3,4]. These tiny machines are responsible for the directed transport of macromolecules, membranes or chromosomes within the cytoplasm. **They play a critical role in virtually every biological process** (e.g., muscle contraction, cell division, intracellular transport, ATP production and genomic transcription)...Myosin, kinesin and their relatives are linear motors that convert the energy of ATP hydrolysis into mechanical work." -- Two scientists, "[Biological and Biomimetic Molecular Machines](#)."

## Scientists

- "Quite simply, scientists' supposed referred expertise about fields of science distant from their own is nearly always based on mythologies about science rather than science itself." -- H.M. Collins and R. Evans, "[THE THIRD WAVE OF SCIENCE STUDIES: STUDIES OF EXPERTISE AND EXPERIENCE](#)."
- "This is mostly in line with a sobering recent realization of NIH in the US that **around 90% [of] all biology science results are NOT repeatable**. Scientist publish what worked not a majority of experiments that do not, even if this is the same experiment." -- Boginslaw Stec PhD ([link](#)).
- "My experiences at four research universities and as a National Institutes of Health (NIH) research fellow taught me that the relentless pursuit of taxpayer funding has eliminated curiosity, basic competence, and scientific integrity in many fields. Yet, more importantly, training in 'science' is now tantamount to grant-writing and learning how to obtain funding. Organized skepticism, critical thinking, and methodological rigor, if present at all, are afterthoughts....American universities often produce corrupt, incompetent, or scientifically meaningless research that endangers the public, confounds public policy, and diminishes our nation's preparedness to meet future challenges....Universities and federal funding agencies lack accountability and often ignore fraud and misconduct. There are numerous examples in which universities refused to hold their faculty accountable until elected officials intervened, and even when found guilty, faculty researchers continued to receive tens of millions of taxpayers' dollars. Those facts are an open secret: When

*anonymously surveyed, over 14 percent of researchers report that their colleagues commit fraud and 72 percent report other questionable practices....Retractions, misconduct, and harassment are only part of the decline. Incompetence is another....The widespread inability of publicly funded researchers to generate valid, reproducible findings is a testament to the failure of universities to properly train scientists and instill intellectual and methodologic rigor. That failure means taxpayers are being misled by results that are non-reproducible or demonstrably false."* Edward Archer PhD, "The Intellectual and Moral Decline in Academic Research," ([link](#)).

- *"The images from a total of 20,621 papers published in 40 scientific journals from 1995 to 2014 were visually screened. Overall, 3.8% of published papers contained problematic figures, with at least half exhibiting features suggestive of deliberate manipulation....The results demonstrate that problematic images are disturbingly common in the biomedical literature and may be found in approximately 1 out of every 25 published articles containing photographic image data."* -- Bik, Casadevall and Fang, "The Prevalence of Inappropriate Image Duplication in Biomedical Research Publications" ([link](#)).
- *"I am merely pointing out that a large proportion of our scientists are being subsidized by the government in the name of might, and none, to my knowledge, in the name of right. Here we have science in an age of rampant nationalism and materialism."* -- Harvard psychologist Henry Murray ([link](#)).
- *"Can so many scientists have been wrong over the eighty years since 1925? Unhappily yes. The mainstream in science...is often wrong...Scientists are often tardy in fixing basic flaws in their sciences despite the presence of better alternatives. Think of the half century it took American geologists to recognize the truth of drifting continents, a theory proposed in 1915 by -- of all eminently ignorable people -- a German meteorologist."* -- economist Stephen Thomas Ziliak ([link](#)).

### **Poor Research Practices**

- *"There is a crisis in pre-clinical biomedical research involving laboratory animals. Too many papers publish results which turn out to be irreproducible. One estimate puts the cost at \$28 billion being wasted per annum in the United States*

alone. The causes of this irreproducibility crisis have not been fully identified. But it has been known for many years that experiments are often poorly designed, inadequately analysed, and misreported. A survey of 271 papers chosen at random involving rats, mice and non-human primates showed that 87% did not report random allocation of experimental subjects to the treatments and 86% did not report 'blinding' when measuring the results. None of the papers gave any justification for their choice of sample size, and a substantial number of papers failed even to state the sex, age or weight of the animal." -- Scientist Michael FW Festing ([link](#)).

- *"For a common effect size of Hedge's  $g = 0.5$  (Welch's independent samples t-test,  $\alpha = 0.05$ ), ten animals per group would correspond to a statistical power of 18%, 30 animals per group to 48% power and 65 animals per group to 81% power...Through a systematic search (Supplementary Notes 1 and 2), we identified a large sample of animal studies in the areas of 'neuroscience' and 'metabolism' ( $n = 1,935$ ) that were previously included in meta-analyses ( $n = 69$ ). These animal studies had an overall median statistical power of 18% (Fig. 1a), which was roughly equal in the two fields (neuroscience, 15%; metabolism, 22%)....We estimated that, at best, 12.5% of a large sample of rodent studies were sufficiently powered (that is, prospective power was larger than 80%). This estimate is a best-case scenario, as it is not yet adjusted for any subsequent multiple testing, experimental bias, P hacking and/or fishing, selective reporting, etc.." -- V. Bonapersona and other scientists, "Increasing the statistical power of animal experiments with historical control data" ([link](#)).*
- *"The production of systematic reviews and meta-analyses has reached epidemic proportions. Possibly, the large majority of produced systematic reviews and meta-analyses are unnecessary, misleading, and/or conflicted." -- John P.A. Ioannidis, professor of medicine and data scientist ([link](#)).*
- *"The median estimated effect size in animal behavior studies (of  $N = 479$  studies surveyed) is Hedge's  $g \sim 0.5$ , corresponding to a medium effect according to Cohen's 1998 interpretation guidelines (Bonapersona et al., 2021). This implies that 50% of*

*the studies in that pool would need sample sizes of >100 per group and >1,000 for the bottom 25% of the animal behavioral studies with the smallest effect sizes. This is a far cry from the median sample size  $N = \sim 10$  that we traditionally use. These results support the notion that sample sizes in animal research do not match the effect sizes under investigation."* -- Four scientists ([link](#)).

## Scientific Publishing

*"When we last visited the lively, ever-evolving world of shady scientific publishing, we saw publication brokers offering journal editors kickbacks to push their papers into print, and here's plenty more about it in a new article here at Science....You too can be a co-author if you just pony up, and if you're an editor, well, you can earn extra cash by slotting these papers into the journal....It's to the point where every journal publisher and every editor will tell you, if they're being honest, that they have been and are continually being offered bribes. I would be very suspicious if someone tried to act shocked at the question, as if they'd never heard of such a thing. This is the state of scientific publishing in the 2020s, and we have to realize it."* -- Organic chemist Derek Lowe ([link](#)).

## Physical Shortfalls of All Human Brains, Tending to Cast Doubt on Common Claims That Brains Explain Fast, Reliable Human Recall

- *"Synaptic transmission and axonal transfer of nerve impulses are too slow to organize coordinated activity in large areas of the central nervous system. Numerous observations confirm this view [73]. The duration of a synaptic transmission is at least 0.5 ms, thus the transmission across thousands of synapses takes about hundreds or even thousands of milliseconds. The transmission speed of action potentials varies between 0.5 m/s and 120 m/s along an axon. More than 50% of the nerves fibers in the corpus callosum are without myelin, thus their speed is reduced to 0.5 m/s. How can these low velocities (i.e. classical signals) explain the fast processing in the nervous system?"* -- The [paper](#) "Emission of Mitochondrial Biophotons and their Effect on Electrical Activity of Membrane via Microtubules" by 7 scientists.
- *"Neural circuits consist of many noisy, slow components, with individual neurons subject to ion channel noise, axonal propagation delays, and*

unreliable and slow synaptic transmission." -- Four scientists ([link](#)).

- *"Neurons communicate primarily through chemical synapses, and that communication is critical for proper brain function. However, chemical synaptic transmission appears unreliable: for most synapses, when an action potential arrives at an axon terminal, about half the time, no neurotransmitter is released and so no communication happens... Furthermore, when neurotransmitter is released at an individual synaptic release site, the size of the local postsynaptic membrane conductance change is also variable. Given the importance of synapses, the energetic cost of generating action potentials, and the evolutionary timescales over which the brain has been optimized, **the high level of synaptic noise seems surprising.**"* -- Four scientists ([link](#)).
- *"The probability of [synaptic] vesicle release [i.e. successful synaptic transmission] is known to be generally low (0.1 to 0.4) from in vitro studies in some vertebrate and invertebrate systems (Stevens, 1994). This unreliability is further compounded by the trial-to-trial variability in the amplitude of the post-synaptic response to a vesicular release."* -- Two scientists ([link](#)).
- *"The release probability, the average probability that an active zone of a presynaptic terminal releases one or more vesicles following an action potential, is tightly regulated. Measurements in cultured neurons or in slices indicate that this probability can vary greatly between synapses, but on average it is estimated to be as high as 0.5....Existing evidence thus suggests that under physiological conditions in vivo, presynaptic action potentials trigger the release of neurotransmitter much less frequently than what is observed in in vitro preparations."* -- A paper by two scientists, suggesting synapses transmit signals with a reliability much less than 50% ([link](#)).
- *"On average most synapses respond to only less than half of the presynaptic spikes, and if they respond, the amplitude of the postsynaptic current varies. This high degree of unreliability has been puzzling as it impairs information transmission."* -- Four scientists ([link](#)).
- *"Transmission at individual synaptic contacts on CA1 hippocampal pyramidal neurons has been found to be very unreliable, with greater than half of the arriving presynaptic nerve impulses failing to evoke a postsynaptic response."* -- Two scientists ([link](#)).

## The Vacuum Catastrophe

"There are no robust predictions for the CC [cosmological constant] value within the standard QFT [Quantum Field Theory] paradigm that account for all existing vacuum contributions from quantum field dynamics (i.e. condensates) at various scales – ranging from the quantum gravity scale,  $M_{Pl} \sim 1.2 \cdot 10^{19}$  GeV, to the quantum chromodynamics (QCD) confinement scale,  $M_{QCD} \sim 0.1$  GeV. The well-studied quark-gluon and Higgs condensates alone (responsible for chiral and gauge symmetry-breaking in the SM respectively) have contributions to the ground state energy of the Universe that far exceed the observed absolute CC value today [5]. Regardless of how the observed CC is explained, these huge quantum vacuum contributions must be eliminated [to explain a habitable universe such as ours]. Any consistent solution of this problem, known as the 'vacuum catastrophe', must rely on a compensation of short-distance vacuum fluctuations by the ground state density of the Universe to many tens of decimal digits. A dynamical mechanism for such gross cancellations (without a major finetuning) is not known, and should be regarded as a new physical phenomenon anyway.....**There is still no real consensus in the community on what the resolution to the CC [cosmological constant] problem is or should be.** This is quite an unusual situation in physics, where traditionally there has tended to be a consensus on at least a general direction to look in. " -- A team of scientists in 2016 confessing (in extremely dense jargon) that scientists cannot explain why ordinary space (a vacuum) is not very much denser than steel, because of quantum contributions from virtual particles, leaving a cosmological constant more than 1,000,000,000,000,000,000,000,000,000 times greater than observed ([link](#), p. 21). The reference to "many tens of decimal places" refers to a fine-tuning such as a coincidental perfect balance to 1 part in 1,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000.

## Cosmology

- "Cosmologists often make assertions that have little scientific justification. Their language frequently reflects that of a belief system rather than that of a science, and the response of institutional cosmology to reputable scientists who have different interpretations of data or who advance alternative conjectures is too often reminiscent of a Church dealing with dissenters." John Hands MD, "Cosmo Sapiens: Human Evolution From the Origin of the Universe," page 156.

- *"The standard model currently has no explanation for why the Universe was initially in a very low entropy state (as required by the second law [of thermodynamics]), and for how the CMB acquired such high entropy so soon after the Big Bang.....One cannot avoid the conclusion that the standard model needs a complete overhaul in order to survive....The argument against standard cosmology in its present form continues to grow as several major inconsistencies and inexplicable features resist concerted attempts at resolution...At face value, the standard model of cosmology thus appears to be inconsistent with the first and second laws of thermodynamics, constituting yet another conflict with our fundamental physical theories....This collection of seemingly insurmountable inconsistencies and paradoxes ought to convince even its most diehard supporters that a major overhaul of the standard model is called for."* Astronomer Fulvio Melia, ["A Candid Assessment of Standard Cosmology,"](#) 2022.
- *"The fact that most cosmologists do not pay them any attention and only dedicate their research time to the standard model is to a great extent due to a sociological phenomenon (the 'snowball effect' or 'groupthink'). We might well wonder whether cosmology, our knowledge of the Universe as a whole, is a science like other fields of physics or a predominant ideology." --Martin Lopez-Corredoira, ["Non-standard Models and the Sociology of Cosmology."](#)*

### **Cosmic Inflation (The Popular But Groundless Speculation of Exponential Expansion Near the Beginning of Time)**

- *"Two improbable criteria have to be satisfied for inflation to start. First, shortly after the big bang, there has to be a patch of space where the quantum fluctuations of spacetime have died down and the space is well described by Einstein's classical equations of general relativity; second, the patch of space must be flat enough and have a smooth enough distribution of energy that the inflationary energy can grow to dominate all other forms of energy. Several theoretical estimates of the probability of finding a patch with these characteristics just after the big bang suggest that it is more difficult than finding a snowy mountain equipped with a ski lift and well-*

*maintained ski slopes in the middle of a desert. More important, if it were easy to find a patch emerging from the big bang that is flat and smooth enough to start inflation, then inflation would not be needed in the first place. Recall that the entire motivation for introducing it was to explain how the visible universe came to have these properties; if starting inflation requires those same properties, with the only difference being that a smaller patch of space is needed, that is hardly progress. Such issues are just the beginning of our problems, however. Not only does inflation require starting conditions that are difficult to obtain, it also impossible to stop inflation once it gets going....If inflation took place the CMB should contain evidence of cosmic gravitational waves—ripples in spacetime caused by the early stretching—yet it does not."* -- Three cosmologists ([link](#)).

- *"The problem is that no particular model of inflation has been shown to work yet."* -- Physicist Philip Gibbs ([link](#)).
- *"The staggering amount of fine-tuning which is required disturbs many cosmologists."* -- Two physicists, referring to the cosmic inflation theory ([link](#)).

### **The Matter/Antimatter Asymmetry Problem: The Failure of Scientists to Explain the Existence of Matter**

- *"One cannot ignore the deep, unanswered question concerning the origin of the baryonic component because baryons and antibaryons should have annihilated almost completely, leaving only a negligible abundance today. Yet we observe a far greater concentration than the standard model of particle physics and the first and second laws of thermodynamics should have permitted. So where did baryons come from?"* Astronomer Fulvio Melia, "[A Candid Assessment of Standard Cosmology](#)," 2022.
- *"We believe the big bang produced the same amounts of matter and antimatter. These should have annihilated each other, leaving a universe made of electromagnetic radiation and not much else."* -- Professor Stefan Ulmer, a scientist at CERN ([link](#)).
- *"The Big Bang should have created equal amounts of matter and antimatter in the early universe. But today, everything we see from the smallest life forms on Earth to the largest stellar objects is made almost*

entirely of matter. Comparatively, there is not much antimatter to be found." -- "The matter-antimatter asymmetry problem," a page on the CERN web site describing the European Organization for Nuclear Research projects ([link](#)).

## Theoretical Physics

- "Contemporary foundational theoretical physics is largely broken. It offers nothing in which experimentalists can invest any real confidence.** Theorists have instead retreated into their own fantasy, increasingly unconcerned with the business of developing theories that connect meaningfully with empirical reality. About forty years ago particle theorists embarked on a promising journey in search of a fundamental description of matter based on the notion of 'strings'. Lacking any kind of guidance from empirical facts, forty years later string theory and the M-theory conjecture are hopelessly mired in metaphysics, a direct consequence of over-interpreting a mathematics that looks increasingly likely to have nothing whatsoever to do with physical reality. The theory has given us supersymmetric particles that can't been found. It has given us hidden dimensions that may be compactified at least 10 [to the 500th power] different ways to yield a universe a bit like our own. And at least for some theoretical physicists who I believe really should know better, it has given us a multiverse – a landscape (or swampland?) of possibilities from which we self-select our universe by virtue of our existence...I'm pretty sure there was a time in which this kind of metaphysical nonsense would have been rejected out-of-hand, with theorists acknowledging the large neon sign flashing WRONG WAY....Alas, instead we get a strong sense of the extent to which foundational theoretical physics is broken." Physicist Jim Baggott, in the [paper](#) "The sounds of science—a symphony for many instruments and voices: part II."
- "That has been a little bit crushing; for 20 years I've been chasing the supersymmetrical particles. **So we're like deer in the headlights: we didn't find supersymmetry, we didn't find dark matter as a particle.**" -- physicist Maria Spiropulu commenting on the dismal failure of supersymmetry theory ([link](#), [link](#)).

## Orphan Genes

*"Comparative genome analyses indicate that every taxonomic group so far studied contains 10–20% of genes that lack recognizable homologs in other species...It is surprising that orphans have been completely ignored by most comparative genomics studies."* -- Several scientists, ["More than just orphans: are taxonomically-restricted genes important in evolution?"](#)

## DNA and Genes

- *"The common belief that there are things inside of us that constitute a set of instructions for building bodies and minds -- things that are analogous to 'blueprints' or 'recipes' -- is undoubtedly false."* -- Professor David S. Moore, *The Developing Genome*, page 26.
- *"The genome does not encode much except for amino acids."* -- Neuroscientist Romain Brette ([link](#)).
- *"It is now clear that the genome does not directly program the organism; the computer program metaphor has misled us...The genome does not function as a master plan or computer program for controlling the organism; the genome is the organism's servant, not its master."* -- 3 scientists in a 2016 scientific [paper](#).
- *"The DNA is not a program or sequentially accessed control over the behavior of the cell."* -- Developmental biologist C/H. Waddington ([link](#)).
- *"DNA is not a blueprint for an organism; no information is actively processed by DNA alone...DNA is a passive repository for transcription of stored data into RNA, some (but by no means all) of which goes on to be translated into proteins."* -- Scientists Walker and Davies in a scientific [paper](#).
- *"DNA cannot be seen as the 'blueprint' for life...It is at best an overlapping and potentially scrambled list of ingredients that is used differently by different cells at different times."* -- Antony Jose, associate professor of cell biology and molecular genetics at the University of Maryland ([link](#)).
- *"Since genes make molecules, genetics...does not tell us how the molecules are organized into the dynamic, organized process that is the living organism."* -- Biologist B.C. Goodwin ([link](#)).
- *"DNA is not a blueprint, and the four dimensions of life (three of space, one of time) cannot be read off from its one-dimensional strand."* -- Biologist Steven Rose ([link](#)).

- "It is now evident that genes play only a minor role in evolution....We now know that the gene-centered Modern Synthesis was quite wrong (see especially Shapiro 2011, 2022; Noble 2012, 2013; Noble and Noble 2023; Corning 2018, 2020). Over the past few decades there has been a growing body of contradictory evidence.

## Darwinist Attempts to Explain the Origin of Sexual Reproduction

- *"Neo-Darwinism can't account for sexual reproduction."* -- biologist Josh Mitteldorf PhD, "Cracking the Aging Code," page 31.
- *"It is not sufficient to postulate an amazing feat of mis-copying that contrived to produce a highly beneficial structural change. We have to postulate the simultaneous occurrence of three miracles. Whatever miracle occurs to a male, say, there must be the even greater miracle that just the same structural change occurs, by a chance mis-copying to a female, and furthermore, that the two miracles must happen in the same place at much the same time, otherwise the changed male will not find the changed female. Mathematically, this means that the probability of an appreciable change being successfully propagated is the product of these three small numbers, making the result negligibly small."* -- Scientist Fred Hoyle ([link](#)).

## Cells and Cell Reproduction

- *"Replication is one of the deepest mysteries of biology. It is really something totally counterintuitive if cell is seen as a sack of water plus some chemicals. We have a lot [of] facts about what happens in the replication at DNA level but **how this miracle happens is a mystery**. At cell level the situation gets even more complex."* -- M. Pitkanen, physics PhD, "[Getting philosophical: some comments about the problems of physics, neuroscience, and biology.](#)"
- *"How cells control their size and maintain stable size distributions is one of the most fundamental, unsolved problems in biology...Even for the bacterium *E. coli*, arguably the most extensively studied organism to date, no one has been able to answer this question."* --Suckjoon Jun, an assistant professor of physics and molecular biology ([link](#)).
- *"How cell size is determined and regulated is an important yet poorly understood question in*

biology." -- A scientist ([link](#)).

- *"Cell biology is a mystery for many reasons one of which is the lack of basic knowledge. This may be the fault of scientists or simply a failure in basic information at the level of common contemporary knowledge. The well known sentence of Socrates: 'I know that I know nothing' is as true in cell biology as in other scientific fields. This sentence was modified by Lloyd in 1986 who claimed: 'The closer we look, the less we see'. I would like to modify this sentence yet again as a cell biologist and microscopist: 'The closer we look, the less we know about.' ... **Everyone involved in cell biology, is surprised how limited is our knowledge about the various cell compartments....It should now be mentioned that our knowledge even of basic cell organelles, including their various functions, is very limited....**We know something about cell organelles, including various nuclear compartments, but most of their functions are waiting for further and better clarification....Depending on conditions, selected genes may be repressed or derepressed and activated giving to rise to the particular cell lineage with characteristic cell structures and functions. On the other hand, such transformations, including the homing of the transformed cells are also very mysterious although both these processes are empirically used in clinical medicine."* Karel Smetana, cell biologist, "To the Mystery of Cell Biology.," ([link](#)).
- *"Despite the centrality of multicellularity and cell differentiation to animal biology, their origins are little understood."* -- Two cell biologists ([link](#)).
- *"We have little understanding of the processes that allow cells to become different."* -- Two scientists, 2019 ([link](#)).
- *"Our understanding of glial cell biology is still in its infancy,"* -- A scientist in 2017 ([link](#)).
- *"Scientists have been trying to understand how cells are built since the 1800s. This does not surprise us and, as scientists ourselves, we have always been puzzled at how cells, such complex structures, are able to reproduce over and over again. Even more astonishing is that, despite the frequency of cell division, mistakes are relatively rare and almost always corrected. According to Professor David*

*Morgan from University of California, the complexity that we observe in cells can be compared to that of airplanes."* --A scientist ([link](#)).

- *"Our understanding of how organelles physically interact and use cellular signaling systems to coordinate functional networks between each other is still in its infancy."* -- Two biologists ([link](#)).
- *"We know each of the proteins that exist in our cells, but how they fit together to then carry out the function of a cell still remains largely unknown across cell types."* -- Leah Schaffer, Ph.D ([link](#)).
- *"What's remarkable is that for no human cell type do we really have a proper parts catalog and assembly manual."* -- Trey Ideker, Ph.D. ([link](#)).

## Neuroscience

- *"Brain-wide association studies need thousands of individuals to achieve higher reproducibility. Typical brain-wide association studies enroll just a few dozen people. So-called 'underpowered' studies are susceptible to uncovering strong but misleading associations by chance while missing real but weaker associations. Routinely underpowered brain-wide association studies result in a surplus of strong yet irreproducible findings."* -- [Press release](#) describing the [study](#) "Reproducible brain-wide association studies require thousands of individuals" by several scientists.
- *"False report probability is likely to exceed 50% for the whole literature. In light of our findings, the recently reported low replication success in psychology is realistic, and worse performance may be expected for cognitive neuroscience."* -- Denes Szucs and John P. A. Ioannidis, "'Empirical assessment of published effect sizes and power in the recent cognitive neuroscience and psychology literature" ([link](#)).
- *"Irreproducible, inflated effect sizes were ubiquitous, no matter the method (univariate, multivariate)." -- A [paper](#) by numerous scientists.*
- *"There are no completed large-scale replication projects focused on neuroscience."* -- Randall J. Ellis, 2022 ([link](#)).
- *"Cognitive neuroscience is far from relying on firm methodological grounds."* -- Stefan Frisch, "The

## Tangled Knots of Neuroscientific Experimentation" [\(link\)](#).

- *"Personally I'd say I don't really believe about 95% of what gets published...I think claims of 'selective' activation [in brains] are almost without exception completely baseless."* -- neuroscientist Tal Yarkoni [\(link\)](#).
- *"The results show a rapid growth of RFPs [red-flagged fake publications] over time in neuroscience (13.4% to 33.7%) and a somewhat smaller and more recent increase in medicine (19.4% to 24%) (Fig. 2). A cause of the greater rise of neuroscience RFPs may be that fake experiments (biochemistry, in vitro and in vivo animal studies) in basic science are easier to generate because they do not require clinical trial ethics approval by regulatory authorities."* -- Bernard Sabel and 2 other PhD's, "Fake Publications in Biomedical Science: Red-flagging Method Indicates Mass Production." [\(link\)](#).
- *"However widespread is the acceptance among cognitive neuroscientists of this second part of the ontological postulate -- the mind is an emergent factor from the interactions among the vast number of neurons that make up the brain -- it must be reiterated that there is no proof of it, and it has to be considered as an unprovable assumption rather than a provable fact."* -- psychology professor emeritus William R. Uttal, 2011 [\(link\)](#).
- *"Neuroscience, as it is practiced today, is a pseudoscience, largely because it relies on post hoc correlation-fishing....As previously detailed, practitioners simply record some neural activity within a particular time frame; describe some events going on in the lab during the same time frame; then fish around for correlations between the events and the 'data' collected. Correlations, of course, will always be found. Even if, instead of neural recordings and 'stimuli' or 'tasks' we simply used two sets of random numbers, we would find correlations, simply due to chance. What's more, the bigger the dataset, the more chance correlations we'll turn out (Calude & Longo (2016)). So this type of exercise will always yield 'results;' and since all we're called on to do is count and correlate, there's no way we can fail. Maybe some of our correlations are 'true,' i.e. represent reliable associations; but we have no way of knowing; and in the case of complex*

*systems, it's extremely unlikely. It's akin to flipping a coin a number of times, recording the results, and making fancy algorithms linking e.g. the third throw with the sixth, and hundredth, or describing some involved pattern between odd and even throws, etc. The possible constructs, or 'models' we could concoct are endless. But if you repeat the flips, your results will certainly be different, and your algorithms invalid...As Konrad Kording has admitted, practitioners get around the non-replication problem simply by avoiding doing replications."* -- A vision scientist ([link](#)).

- *"To this day there is no satisfactory answer to the question how mental patterns correspond to physical states of our brain."* -- Christoph von der Malsburg, neuroscientist ([link](#)).
- *"To sum up, it can be said that when it comes to answering the question of how information is carried forward in time in the brain we remain largely clueless."* -- Cognitive scientist Patrick C. Trettenbrein, "The Demise of the Synapse As the Locus of Memory" ([link](#)).
- **"We present converging evidence demonstrating poor reliability of task-fMRI measures."** First, a meta-analysis of 90 experiments ( $N = 1,008$ ) revealed poor overall reliability—mean intraclass correlation coefficient ( $ICC$ ) = .397. Second, the test-retest reliabilities of activity in a priori regions of interest across 11 common fMRI tasks collected by the Human Connectome Project ( $N = 45$ ) and the Dunedin Study ( $N = 20$ ) were poor ( $ICCs = .067-.485$ ). Collectively, these findings demonstrate that common task-fMRI measures are not currently suitable for brain biomarker discovery or for individual-differences research." -- "What Is the Test-Retest Reliability of Common Task-Functional MRI Measures? New Empirical Evidence and a Meta-Analysis," two scientists ([link](#)).
- *"Indeed, the available neuroscience interpretations show a stunning incoherence, both within and across studies. The interpretational gamut implies hundreds, perhaps thousands, of different possible neuronal versions of Shannon's general communication system. The obvious lack of a definitive, credible interpretation makes neuroscience calculations of channel capacity and information transmitted meaningless. To now answer why Shannon's system was ever adapted for*

neuroscience, three common features of the neuroscience literature were examined: ignorance of the role of the observer, the presumption of 'decoding' of neuronal voltage-spike trains, and the pursuit of ingrained analogies such as information, computation, and machine. Each of these factors facilitated a plethora of interpretations of Shannon's system elements. Finally, let us not ignore the impact of these 'informational misadventures' on society at large. It is the same impact as scientific fraud....The number of peer reviewed papers expounding information theory analyses of neuronal firing probably well-exceeds 1,000. A typical contemporary cost for such a study might be \$30,000 United States dollars, most of it committed to salary. Altogether, that's \$30,000,000 in total costs, as a minimum cost estimate-enough, at current salaries, to support 600 postdoctoral research fellows for an entire year. **Then, there is the wasted time:** hundreds of thousands of hours, spent primarily by the graduate students and postdoctoral research fellows who are responsible for running the relevant experiments, programming the calculations, and preparing the manuscripts and the associated conference presentations. And now we reach the most important factor: the number of people receiving academic promotions, some to tenured professorships, **based on papers that present misleading information-theory analyses**, all in a time of grotesque job shortages.

" -- "Information Theory Is Abused in Neuroscience," Lance Nizami, PhD ([link](#)).

- "As Mark Twain is reported to have said: 'It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't true.' **In contemporary neuroscience, the list of assumptions that just ain't true is long indeed**, so patience is required as I expose each in turn." -- Henry Vin, neuroscientist and psychologist, "The Crisis in Neuroscience" ([link](#)).
- "Personally I'd say I don't really believe about 95% of what gets published...I think claims of 'selective' activation are almost without exception completely baseless " -- Tal Yarkoni, PhD and lab director, referring to neuroscience brain imaging studies ([link](#)).

- "Second, however, and much more broadly, **the problem of inflated correlations due to manifold sampling biases is not peculiar to neuroscience.** An intrinsic characteristic of all paradigmatic research is that various sampling filters jointly facilitate an illusion of strong effects, due to selective choice of stimuli, task conditions, moderator and parameter settings, and both independent and dependent variables, as well as selectivity in topics of research, debate, and publication." -- "Voodoo Correlations Are Everywhere—Not Only in Neuroscience" by psychologist Klaus Fiedler ([link](#)).

### **Hype, Fraud, Error and Misleading Language in Science**

- "Scientists need citations for their papers....If the content of your paper is a dull, solid investigation and your title announces this heavy reading, it is clear you will not reach your citation target, as your department head will tell you in your evaluation interview. So to survive – and to impress editors and reviewers of high-impact journals, **you will have to hype up your title. And embellish your abstract. And perhaps deliberately confuse the reader about the content.**" -- Physicist Ad Lagendijk, "[Survival Blog for Scientists](#)."
- "Thirty-four percent of academic studies and 48% of media articles used language that reviewers considered too strong for their strength of causal inference....Fifty-eight percent of media articles were found to have inaccurately reported the question, results, intervention, or population of the academic study....Among the 128 assessed articles assessed, 107 (84 %) had at least one example of spin in their abstract. The most prevalent strategy of spin was the use of causal language, identified in 68 (53 %) abstracts."" -- Statement by scientists in a [scientific paper](#).
- "This system comes with big problems. Chief among them is the issue of publication bias: reviewers and editors are more likely to give a scientific paper a good write-up and publish it in their journal if it reports positive or exciting results. So **scientists go to great lengths to hype up their studies, lean on their analyses so they produce 'better' results, and sometimes even commit fraud in order to impress those all-important gatekeepers.**" -- Brain scientist Stuart Ritchie ([link](#)).

- *"Throughout all the journals, 75% of the citations were Fully Substantiated. The remaining 25% of the citations contained errors...In a sampling of 21 similar studies across many fields, **total quotation error rates varied from 7.8% to 38.2%** (with a mean of 22.4%)." -- Neal Smith and Aaron Cumberledge, ["Quotation errors in general science journals."](#)*
- *"Ioannidis (2005) and Pfeiffer and Hoffmann (2009) argue that reliability of findings published in the scientific literature decreases with the popularity of a research field, in part because competition leads to corner-cutting and even cheating, and in part because if many people do the same type of experiment, this increases the chances (from a statistical perspective) of getting an experiment with misleading results. Carlisle (2021) identified flaws in 44% of medical trials submitted to the Journal Anaesthesia between February 2017 to March 2020, where individual patient data was made available; this is compared to 2% when it was not." -- Three scientists ([link](#)).*
- *"It's time to admit that genes are not the blueprint for life....It's time to stop pretending that, give or take a few bits and pieces, we know how life works." -- Biologist Denis Noble ([link](#)).*
- *"We, as a community of scientists, are so obsessed with publishing papers — there is this mantra 'publish or perish,' and it is the number one thing that is taught to you, as a young scientist, that you must publish a lot in very high profile journals. And that is your number one goal in life. And what this is causing is an environment where scientific fraud can flourish unchecked. Because we are not doing our job, as scientists. We don't have time to cross-check each other, we don't have time to take our time, we don't have time to be very slow and patient with our own research, because we are so focused with publishing as many papers as possible. So we have seen, over the past few years, an explosion in the rise of fraud. And different kinds of fraud. There is the outright fabrication — the creating of data out of whole cloth. And then there's also what I call 'soft fraud' — lazy science, poorly done science. Massaging your results a little bit just so you can achieve a publishable result. That leads to a flooding of just junk, poorly done science." -- Scientist Paul Sutter ([link](#)).*
- *"It's maddening when you see people cheat. And even if it involves grant money from the NIH, there's very little*

*punishment. Even with people who have been caught cheating, the punishment is super light. You are not eligible to apply for new grants for the next year or sometimes three years. It's very rare that people lose jobs over it."* -- Scientist Elizabeth Bik ([link](#)).

### **Human Memory (Often Claimed to be Stored in Synapses)**

- *"Direct evidence that synaptic plasticity is the actual cellular mechanism for human learning and memory is lacking."* -- 3 scientists, "[Synaptic plasticity in human cortical circuits: cellular mechanisms of learning and memory in the human brain?](#)"
- *"The fundamental problem is that we don't really know where or how thoughts are stored in the brain. We can't read thoughts if we don't understand the neuroscience behind them."* -- [Juan Alvaro Gallego](#), neuroscientist.
- *"The search for the neuroanatomical locus of semantic memory has simultaneously led us nowhere and everywhere. There is no compelling evidence that any one brain region plays a dedicated and privileged role in the representation or retrieval of all sorts of semantic knowledge."*  
Psychologist Sharon L. Thompson-Schill, "[Neuroimaging studies of semantic memory: inferring 'how' from 'where' "](#)."
- *"How the brain stores and retrieves memories is an important unsolved problem in neuroscience."* -- Achint Kumar, "[A Model For Hierarchical Memory Storage in Piriform Cortex.](#)"
- *"We are still far from identifying the 'double helix' of memory—if one even exists. We do not have a clear idea of how long-term, specific information may be stored in the brain, into separate engrams that can be reactivated when relevant."* -- Two scientists, "[Understanding the physical basis of memory: Molecular mechanisms of the engram.](#)"
- *"There is no chain of reasonable inferences by means of which our present, albeit highly imperfect, view of the functional organization of the brain can be reconciled with the possibility of its acquiring, storing and retrieving nervous information by encoding such information in molecules of nucleic acid or protein."* -- Molecular geneticist G. S. Stent, quoted in the paper [here](#).

- *"Up to this point, we still don't understand how we maintain memories in our brains for up to our entire lifetimes."* --neuroscientist [Sakina Palida](#).
- *"The available evidence makes it extremely unlikely that synapses are the site of long-term memory storage for representational content (i.e., memory for 'facts' about quantities like space, time, and number)."* --Samuel J. Gershman, ["The molecular memory code and synaptic plasticity: A synthesis."](#)
- *"Synapses are signal conductors, not symbols. They do not stand for anything. They convey information bearing signals between neurons, but they do not themselves convey information forward in time, as does, for example, a gene or a register in computer memory. No specifiable fact about the animal's experience can be read off from the synapses that have been altered by that experience."* -- Two scientists, ["Locating the engram: Should we look for plastic synapses or information- storing molecules?"](#)
- *"If I wanted to transfer my memories into a machine, I would need to know what my memories are made of. But nobody knows."* -- neuroscientist Guillaume Thierry ([link](#)).
- *"While a lot of studies have focused on memory processes such as memory consolidation and retrieval, very little is known about memory storage"* -- scientific paper ([link](#)).
- *"While LTP is assumed to be the neural correlate of learning and memory, no conclusive evidence has been produced to substantiate that when an organism learns LTP occurs in that organism's brain or brain correlate."* -- PhD thesis of a scientist, 2007 ([link](#)).
- *"Memory retrieval is even more mysterious than storage. When I ask if you know Alex Ritchie, the answer is immediately obvious to you, and there is no good theory to explain how memory retrieval can happen so quickly."* -- Neuroscientist [David Eagleman](#).
- *"How could that encoded information be retrieved and transcribed from the enduring structure into the transient signals that carry that same information to the computational machinery that acts on the information?....In the voluminous contemporary literature on the neurobiology of memory, there is no discussion of these questions." --- Neuroscientists C. R. Gallistel and Adam Philip King, "Memory and the*

## Computational Brain: Why Cognitive Science Will Transform Neuroscience," [preface](#).

- *"The very first thing that any computer scientist would want to know about a computer is how it writes to memory and reads from memory....Yet we do not really know how this most foundational element of computation is implemented in the brain."* -- Noam Chomsky and Robert C. Berwick, "Why Only Us? Language and Evolution," [page 50](#).
- *"When we are looking for a mechanism that implements a read/write memory in the nervous system, looking at synaptic strength and connectivity patterns might be misleading for many reasons...Tentative evidence for the (classical) cognitive scientists' reservations toward the synapse as the locus of memory in the brain has accumulated....Changes in synaptic strength are not directly related to storage of new information in memory....The rate of synaptic turnover in absence of learning is actually so high that the newly formed connections (which supposedly encode the new memory) will have vanished in due time. It is worth noticing that these findings actually are to be expected when considering that synapses are made of proteins which are generally known to have a short lifetime...Synapses have been found to be constantly turning over in all parts of cortex that have been examined using two-photon microscopy so far...**The synapse is probably an ill fit when looking for a basic memory mechanism in the nervous system.**"* -- Scientist Patrick C. Trettenbrein, "The Demise of the Synapse As the Locus of Memory: A Looming Paradigm Shift? ([link](#)).
- *"Most neuroscientists believe that memories are encoded by changing the strength of synaptic connections between neurons....Nevertheless, the question of whether memories are stored locally at synapses remains a point of contention. Some cognitive neuroscientists have argued that for the brain to work as a computational device, it must have the equivalent of a read/write memory and the synapse is far too complex to serve this purpose ([Gaallistel and King, 2009](#); [Trettenbrein, 2016](#)). While it is conceptually simple for computers to store synaptic weights digitally using their read/write capabilities during deep learning, **for biological systems no realistic biological mechanism***

***has yet been proposed, or in my opinion could be envisioned, that would decode symbolic information in a series of molecular switches (Gaallistel and King, 2009) and then transform this information into specific synaptic weights."*** --

Neuroscientist Wayne S. Sossin ([link](#)).

- *"We take up the question that will have been pressing on the minds of many readers ever since it became clear that **we are profoundly skeptical about the hypothesis that the physical basis of memory is some form of synaptic plasticity, the only hypothesis that has ever been seriously considered by the neuroscience community.** The obvious question is: Well, if it's not synaptic plasticity, what is it? Here, we refuse to be drawn. **We do not think we know what the mechanism of an addressable read/write memory is, and we have no faith in our ability to conjecture a correct answer."*** -- Neuroscientists C. R. Gallistel and Adam Philip King, "Memory and the Computational Brain Why Cognitive Science Will Transform Neuroscience." [page Xvi \(preface\)](#).
- *"Current theories of synaptic plasticity and network activity cannot explain learning, memory, and cognition."* -- Neuroscientist Hessameddin Akhlaghpour ([link](#)).
- *"How memory is stored in the brain is unknown."* -- Research proposal abstract written by scientists, 2025 ([link](#)).
- *"We don't know how the brain stores anything, let alone words."* -- Scientists David Poeppel and, William Idsardi, 2022 ([link](#)).
- *"If we believe that memories are made of patterns of synaptic connections sculpted by experience, and if we know, behaviorally, that motor memories last a lifetime, then how can we explain the fact that individual synaptic spines are constantly turning over and that aggregate synaptic strengths are constantly fluctuating? How can the memories outlast their putative constitutive components?"* -- Neuroscientists Emilio Bizzi and Robert Ajemian ([link](#)).
- *"After more than 70 years of research efforts by cognitive psychologists and neuroscientists, the question of where memory information is stored in*

*the brain remains unresolved."* --

Psychologist James Tee and engineering expert Desmond P. Taylor, "[Where Is Memory Information Stored in the Brain?](#)"

- *"There is no such thing as encoding a perception...There is no such thing as a neural code...Nothing that one might find in the brain could possibly be a representation of the fact that one was told that Hastings was fought in 1066."* -- M. R. Bennett, Professor of Physiology at the University of Sydney ([link](#)).
- *"No sense has been given to the idea of encoding or representing factual information in the neurons and synapses of the brain."* -- M. R. Bennett, Professor of Physiology at the University of Sydney ([link](#)).
- *"Despite over a hundred years of research, the cellular/molecular mechanisms underlying learning and memory are still not completely understood. Many hypotheses have been proposed, but there is no consensus for any of these."* -- Two scientists in a 2024 paper ([link](#)).
- *"We have still not discovered the physical basis of memory, despite more than a century of efforts by many leading figures. Researchers searching for the physical basis of memory are looking for the wrong thing (the associative bond) in the wrong place (the synaptic junction), guided by an erroneous conception of what memory is and the role it plays in computation."* --Neuroscientist C.R. Gallistel, "[The Physical Basis of Memory](#)," 2021.
- *"To name but a few examples, **the formation of memories and the basis of conscious perception, crossing the threshold of awareness**, the interplay of electrical and molecular-biochemical mechanisms of signal transduction at synapses, the role of glial cells in signal transduction and metabolism, the role of different brain states in the life-long reorganization of the synaptic structure **or the mechanism of how cell assemblies generate a concrete cognitive function are all important processes that remain to be characterized.**"* -  
- "The coming decade of digital brain research, a 2023 [paper](#) co-authored by more than 100 neuroscientists, one confessing scientists don't understand how a brain could store memories.

- *"The human brain isn't really empty, of course. But it does not contain most of the things people think it does – not even simple things such as 'memories'....We don't create **representations** of visual stimuli, **store** them in a short-term memory buffer, and then **transfer** the representation into a long-term memory device. We don't **retrieve** information or images or words from memory registers. Computers do all of these things, but organisms do not."* -- Robert Epstein, senior research psychologist, ["The Empty Brain."](#)
- *"Despite recent advancements in identifying engram cells, our understanding of their regulatory and functional mechanisms remains in its infancy."* -- Scientists claiming erroneously in 2024 that there have been recent advancements in identifying engram cells, but confessing there is no understanding of how they work ([link](#)).
- *"Study of the genetics of human memory is in its infancy though many genes have been investigated for their association to memory in humans and non-human animals."* -- Scientists in 2022 ([link](#)).
- *"The neurobiology of memory is still in its infancy."* - - Scientist in 2020 ([link](#)).
- *"The investigation of the neuroanatomical bases of semantic memory is in its infancy."* -- 3 scientists, 2007 ([link](#)).
- *"Currently, our knowledge pertaining to the neural construct of intelligence and memory is in its infancy."* -- Scientists, 2011 ([link](#)).
- *"Very little is known about the underlying mechanisms for visual recognition memory."* -- two scientists ([link](#)).
- *"Conclusive evidence that specific long-term memory formation relies on dendritic growth and structural synaptic changes has proven elusive. Connectionist models of memory based on this hypothesis are confronted with the so-called plasticity stability dilemma or catastrophic interference. Other fundamental limitations of these models are the feature binding problem, the speed of learning, the capacity of the memory, the localisation in time of an event and the problem of spatio-temporal pattern generation."* -- Two scientists in 2022 ([link](#)).
- *"The mechanisms governing successful episodic memory formation, consolidation and retrieval*

remain elusive," - Bogdan Draganski, cognitive neuroscientist ([link](#)).

- "The mechanisms underlying the formation and management of the memory traces are still poorly understood." -- Three scientists in 2023 ([link](#)).
- "The underlying electrophysiological processes underlying memory formation and retrieval in humans remains very poorly understood." -- A scientist in 2021 ([link](#)).
- "As for the explicit types of memory, the biological underpinning of this very long-lasting memory storage is not yet understood." -- Neuroscientist Cristina M. Alberini in a year 2025 paper ([link](#)).

### Biological Psychiatry

- "In contrast, the major mental illnesses...bipolar disorder, anxiety disorders, anorexia nervosa and depression have proved remarkably resistant to similar developments. Unfortunately, **it is still not possible to cite a single neuroscience or genetic finding that has been of use to the practicing psychiatrist in managing these illnesses** despite attempts to suggest the contrary." -- David Kingdon, Emeritus Professor of Mental Health Care Delivery. "[Why Hasn't Neuroscience Delivered for Psychiatry?](#)"
- "Despite three decades of intense neuroimaging research, we still lack a neurobiological account for any psychiatric condition. Likewise, functional neuroimaging plays no role in clinical decision making....It remains difficult to refute a critique that psychiatry's most fundamental characteristic is its ignorance. . . . Casting a cold eye on the psychiatric neuroimaging literature invites a conclusion that despite 30 years of intense research and considerable technological advances, this enterprise has not delivered a neurobiological account (i.e., a mechanistic explanation) for any psychiatric disorder, nor has it provided a credible imaging-based biomarker of clinical utility." -- Neuroscientist Raymond Dolan and two other scientists ([link](#)).

### Telepathy, Paranormal Phenomena and Parapsychology Research

- "How we should like to discredit them! Unfortunately the statistical evidence, at least for

*telepathy, is overwhelming.*" -- Mathematician Alan Turing ([link](#)).

- *"Since experiments by Dunninger and others have proved telepathy to an acceptable degree, demonstrations of this nature are not eligible for the award."* -- The editors of *Scientific American* magazine, 1941 ([link](#)).
- *"Last of all I went with Lord Brougham to a seance of the new spirit-rapper, Mr. Home, a lad of twenty. ... We four sat down at a moderately-sized table, the structure of which we were invited to examine. In a short time the table shuddered, and a tremulous motion ran up all our arms ; at our bidding these motions ceased and returned. The most unaccountable rappings were produced in various parts of the table, and the table actually rose from the ground when no hand was upon it. A larger table was produced, and exhibited similar movements...A small hand-bell was then laid down with its mouth on the carpet, and after lying for some time it actually rang when nothing could have touched it. The bell was then placed on the other side, still upon the carpet, and it came over to me and placed itself in my hand. It did the same to Lord Brougham. These were the principal experiments; we could give no explanation of them, and could not conjecture how they could be produced by any kind of mechanism. Hands are sometimes seen and felt, the hand often grasps another, and melts away, as it were, under the grasp. The object of asking Lord Brougham and me seems to have been to get our favourable opinion of the exhibition, but though neither of us can explain what we saw, we do not believe that it was the work of idle spirits."* -- Sir David Brewster, Scottish physicist, in [a private June 1855 letter](#) about a meeting with [Daniel Dunglas Home](#).
- *"Among the remarkable phenomena which occur under Mr. Home's influence, the most striking, as well as the most easily tested with scientific accuracy, are --(1) the alteration in the weight of bodies, and (2) the playing of tunes upon musical instruments (generally an accordion, for purposes of portability) without direct human intervention, under conditions rendering contact or connection with the keys impossible. Not until I had witnessed these facts some half-dozen times, and scrutinised them with all the critical acumen that I possess, did I become convinced of their objective reality....The*

*most striking cases of levitation which I have witnessed have been with Mr. Home. On three separate occasions have I seen him raised completely from the floor of the room. Once sitting in an easy chair, once kneeling on his chair, and once standing up....There are at least a hundred recorded instances of Mr. Home rising from the ground, in the presence of as many separate persons."* Sir William Crookes, one of the 19th century's leading physicists, "Researches Into the Phenomena of Modern Spiritualism," [page 6](#), and [page 38](#).

- *"Essentially relying on highly problematic secondary sources and counting unsuccessful replications published in mainstream science journals only, philosophers dismissing psychical research as pseudo- or non-science as a rule promulgate the kind of misleading images of scientific practice typically found in productions of the popular science industry. The scholarly primary literature of parapsychology and psychical research mentioned above is usually ignored and substituted by references to popular magazines like the Skeptical Inquirer....The usually deeply biased entries on parapsychological topics on Wikipedia are also dominated by the literature produced by modern Enlightenment crusaders organised in Skeptics clubs and associations. Professional discussions of the demarcation problem by philosophers are strongly dominated by what self-appointed popular guardians of 'Science' and 'Reason' claim 'the parapsychologists' do, rather than by what these and other heterodox scientists actually have been doing as far as this is possible to reconstruct through original publications, archival material and other standard primary sources of historical research." -- Andreas Sommer, Department of History and Philosophy of Science, University of Cambridge ([link](#)).*
- *"I consider it no exaggeration to say, that the main facts are now as well established and as easily verifiable as any of the more exceptionable phenomena of nature which are not yet reduced to law. They have a most important bearing on the interpretation of history, which is full of narratives of similar facts, and on **the nature of life and intellect, on which physical science throws a very feeble and uncertain light**; and it is my firm and deliberate belief that every branch of*

*philosophy must suffer till they are honestly and seriously investigated, and dealt with as constituting an essential portion of the phenomena of human nature."* -- Alfred Russel Wallace, co-founder of the theory of evolution by natural selection, speaking about paranormal phenomena, and confessing (contrary to the claims of Darwinists) that physical science throws a "very feeble and uncertain light" on the nature of life and intellect ([link](#)).

- *"The first fact capable of proof is this: that during the last 18 years, while physical science has been progressing with rapid strides...a continually increasing number of persons maintain their belief in the existence of beings of the nature of those we have hitherto postulated as a bare possibility. All these persons declare that they have received direct and oft-repeated proofs of the existence of such beings. Most of them tell us they have been convinced against all their previous notions and prepossessions. Very many have previously been materialists, not believing in the existence of any intelligences disconnected from a visible, tangible form, nor in the continued existence of the mind of man after death. **At the present moment there are at least three millions of persons in the United States of America, who have received to them satisfactory proofs of the existence of invisible intelligences** ; and in this country [England] there are many thousands who declare the same thing. A large number of these persons continually receive fresh proofs in the privacy of their own homes, and so much interest is felt in the subject that two periodicals are supported in this city, several on the continent, and a very large number in America, which are exclusively devoted to disseminating information relating to the existence of these invisible intelligences and the means of communicating with them. A little enquiry into the literature of the subject, which is already very extensive, reveals the startling fact, that this revival of so-called supernaturalism is not confined to the ignorant or superstitious, or to the lower classes of society. On the contrary, it is rather among the middle and upper classes that the larger proportion of its adherents are to be found; and among those who have declared themselves convinced of the reality of facts such as have been always classed as miracles, are numbers of literary, scientific, and*

professional men, who always have borne and still continue to bear high characters, are above the imputation either of falsehood or trickery, and have never manifested indications of insanity." -- Alfred Russel Wallace, co-founder of the theory of evolution by natural selection, "The Scientific Aspect of the Supernatural," 1866, page 10 ([link](#)).

- "Books by psychologists purporting to be critical reviews of research in parapsychology do not use the scientific standards of discourse prevalent in psychology...Experiments at Maimonides Medical Center on possible extrasensory perception [ESP] in dreams....have been so severely distorted as to give an entirely erroneous impression of how they were conducted." -- Yale psychologist Irvin L. Child, denouncing skeptics' misrepresentations about how successful ESP experiments were conducted ([link](#)).
- "The distinguished Parisian Professor of Medicine, Rostan, gave at the time his corroborative testimony to the existence of this power in the article 'Magnetisme,' in the 'Dictionnaire de Medecine,' wherein he remarked : '**There are few facts better demonstrated than clairvoyance**' ....Innumerable instances are recorded of the possession of the faculty of clairvoyance by persons in the normal state, in sleep [hypnotism], and in some abnormal conditions of the system," -- Edwin Lee, MD, "[Animal Magnetism and Magnetic Lucid Somnambulism](#)" page 103 and page 133.
- "A sister in Edinburgh [Scotland] has a severe heart attack as a result of shock and anxiety, because she knows intuitively that her brother, stationed in India, has met with some disaster, though no physical message of any sort has passed....This is an actual case. The knowledge, of course, was conveyed by Telepathy, but what does that mean ?.... Yet telepathy, as a result of the research carried out in Professor Rhine's Department of Psychology, Duke University, must I think be accepted as a primary datum of science." -- "A Voice From the Grandstand" by Sir Auckland Geddes, Edinburgh Medical Journal, 1937 ([link](#)).

### Consciousness, Self-hood, Creativity and Thinking

- "Despite substantial efforts by many researchers, we still have no scientific theory of how brain activity can create, or be, conscious experience." -- Donald D. Hoffman Department of Cognitive Sciences University

of California, "[Conscious Realism and the Mind-Body Problem](#)."

- *"Little progress in solving the mystery of human cognition has been made to date."* -- 2 neuroscientists, 2021 ([link](#)).
- *"We don't know how a brain produces a thought."* -- Neuroscientist Saskia De Vries ([link](#)).
- *"You realize that neither the term 'decision-making' nor the term 'attention' actually corresponds to a thing in the brain."* -- neuroscientist Paul Cisek ([link](#)).
- *"We know very little about the brain. We know about connections, but we don't know how information is processed."* -- Neurobiologist [Lu Chen](#).
- *"Computers really do operate on symbolic representations of the world. They really store and retrieve. They really process. They really have physical memories. They really are guided in everything they do, without exception, by algorithms. Humans, on the other hand, do not — never did, never will. Given this reality, why do so many scientists talk about our mental life as if we were computers?"* -- Senior research psychologist [Robert Epstein](#).
- *"The neuroscientific study of creativity is stuck and lost."* -- Psychologist Arne Dietrich, "[Where in the brain is creativity: a brief account of a wild-goose chase](#)."
- *"How creative ideas arise in our mind and in our brain is a key unresolved question."* -- nine scientists ([link](#)).
- *"The central dogma of Neuormania is that persons are their brains....Basic features of human experience...elude neural explanation. Indeed, they are at odds with the materialist framework presupposed in Neuormania. Many other assumptions of Neuormania -- such as that the mind-brain is a computer -- wilt on close inspection. All of this notwithstanding, the mantra 'You are your brain' is endlessly repeated. This is not justified by what little we know of the brain, or more importantly, of the relationship between our brains and ourselves as conscious agents."* -- Raymond Tallis, Professor of Geriatric Medicine, University of Manchester, "Aping Mankind," page xii ([link](#)).
- *"And so we are forced to a conclusion opposite to the one drawn earlier: that consciousness cannot be due to activity in the brain and that cerebral activity is an*

*inadequate explanation of mental activity."* --

Raymond Tallis, Professor of Geriatric Medicine, University of Manchester, "Brains and Minds: A Brief History of Neuromythology" ([link](#)).

- *"My own view of a secular universe, devoid of consciousness and intelligence 'beyond the brain' (Grof 1985) gave way little by little over several decades and now seems quite absurd."* John Mack MD, Harvard professor of psychology ([link](#)).
- *"The passage from the physics of the brain to the corresponding facts of consciousness is unthinkable. Were we able even to see and feel the very molecules of the brain, and follow all their motions, all their groupings, all their electric discharges if such there be, and intimately acquainted with the corresponding states of thought and feeling, we should be as far as ever from the solution of the problem,...The chasm between the two classes of phenomena would still remain intellectually impassable."* -- Physicist John Tyndall ([link](#)).
- *"Many who work within the SMC [standard model of consciousness] assume that a nervous system is necessary and sufficient for an existential consciousness. While this is a common stance...we have yet to see a coherent defense of this proposition or a well-developed biomolecular argument for it. For most, it is simply a proclamation. Moreover, we have not seen any effort to identify what features of neural mechanisms 'create' consciousness while non-neural ones cannot. This too is simply a pronouncement."* -- Four scientists, "The CBC theory and its entailments," ([link](#)).
- *"But when it comes to our actual feelings, our thought, our emotions, our consciousness, we really don't have a good answer as to how the brain helps us to have those different experiences."* -- Andrew Newberg, neuroscientist, *Ancient Aliens*, Episode 16 of Season 14, 6:52 mark.
- *"Dr Gregory Jefferis, of the Medical Research Council's Laboratory of Molecular Biology (LMB) in Cambridge told BBC News that currently we have no idea how the network of brain cells in each of our heads enables us to interact with each other and the world around us."* -- BBC news article ([link](#)).

### **Small Mental Effects of Brain Tissue Removal or Brain Tissue Loss or Brain Tumors**

- ***"Dandy has completely removed the right cerebral hemisphere from eight patients. He has performed total extirpations of one or more lobes much oftener... There are tabulated below certain generalizations on the effects of removing the right hemisphere.... The operation was the complete extirpation of the right frontal, temporal, parietal, and occipital lobes peripheral to the corpus striatum. The weight of the tissue removed varies, with the pathological conditions involved, from 250 to 584 gm [grams]. Coherent conversation began within twenty-four hours after operation, and in one case on the afternoon of the same day. Later examinations showed no observable mental changes. The patients were perfectly oriented in respect of time, place, and person; their memory was unimpaired for immediate and remote events; conversation was always coherent; ability to read, write, compute, and learn new material was unaltered. Current events were followed with normal interest. There were no personality changes apparent; the patients were emotionally stable, without fears, delusions, hallucinations, expansive ideas or obsessions, and with a good sense of humor; they joked frequently. They showed a natural interest in their condition and future. They cooperated intelligently at all times throughout post-operative care and subsequent testing of function."*** -- Kenneth Diven, *"Dandy's Radical Extirpations of Brain Tissue in Man,"* 1934.
- ***"Statistical analyses failed to detect a significant effect of tumor histology or tumor volume on intellectual, memory, language, executive, or motor function. In fact, regression and correlation analyses suggest that patient age is of greater importance than tumor histology or tumor volume for determining neuropsychological test performance. Tumor volume was neither predictive of, nor reliably associated with cognitive performance in this patient sample. While these results affirm age as a marker for a worsened prognosis for the more advanced forms of anaplastic glioma, the statistically nonsignificant relationship of tumor volume to cognitive function was unexpected."*** --Anne E. Kayl and Christina A. Meyers, "Does brain tumor histology influence cognitive function?" ([link](#)).
- ***"Despite removal of one hemisphere [i.e. one half of the brain], the intellect of all but one of the children seems either unchanged or***

**improved....**Although there have been major concerns about loss of language after left hemispherectomy, all eleven of these children have regained virtually normal language....It is tempting to speculate, that the continuous electrical activity of these severely dysfunctional hemispheres interferes with the function of the other, more normal hemisphere. This might explain why motor function improves after hemispherectomy and why **language recovers after removal of the dysfunctional left hemisphere**, but does not seem to fully transfer before surgery. Perhaps it also partially explains **intellectual improvement in these children after removal of half of the cortex.** **We are awed by the apparent retention of memory after removal of half of the brain, either half, and by the retention of the child's personality and sense of humor.**" -- Several doctors and scientists, "Why Would You Remove Half a Brain? The Outcome of 58 Children After Hemispherectomy -- The Johns Hopkins Experience: 1968 to 1996" ([link](#)).

- "Intellectual or memory decrements are seldom found after frontal resection." -- Three neuroscientists referring to surgical removal of tissue in the frontal lobes ([link](#)).
- "Aside from the fact that the boy felt no pain from the surgical treatment (and had no anesthetic), it was remarkable that he retained full consciousness and unimpaired mental function, al though a considerable part of the cerebrum was destroyed. **Recent surgical observation has proved that the whole of the right cerebral hemisphere may be removed without disturbance of mentality: this has been done repeatedly for the removal of large brain tumor. Both right and left frontal lobes of the brain may be removed without disturbing the patient's mentality. The patient remains perfectly oriented as to time, place and person; the memory is unimpaired: reading. writing and mathematical calculation are still done accurately; conversation is normal.** In other cases the left occipital lobe and the lower third of the left temporal lobe have been removed without apparent. effect on mentality. " -- William Brady, M.D., 1931 ([link](#)).

- *"Taken as a whole, the mean I.Q. of 95.55 for the 31 patients with lateralized frontal tumors suggests that neoplasms [tumors] in either the right or left frontal lobe result in only slight impairment of intellectual functions as measured by the Wechsler Bellevue test."* - Aaron Smith ([link](#)).
- *"One more bizarre thing the researchers noticed was the bigger the lesions on the cortex, the better the mice performed. 'It was a strange result...' says Hong, who hesitates before adding: 'I wouldn't say that we're confident that if we [tested] a lot more animals we would see it. It was sort of a trend that we noticed. I guess the answer is, we don't know. Basically, it implied that the less the cortex is active, the better the animal is doing and the cortex was somehow interfering with the animal's ability to learn.'"* -- Science article in Forbes magazine, quoting a scientist named Hong ([link](#)).
- *"O'Connor and colleagues reported that after diffuse brain injury, female rats performed better than males on the rotarod test of motor coordination and also incurred a slight advantage on the Barnes maze test of learning and memory."* -- A paper by several scientists ([link](#)).
- *"I've had hemispherectomy patients go to college, get married, have children, have a family, and be cognitively completely normal with one side of the brain, How that happens? We don't understand it."* -- William Bingaman, neurosurgeon, quoted in a section entitled "Living With Half a Brain" ([link](#)).

## Star Formation and Galaxy Formation

- *"Probably, a lot of people are impressed by these beautiful images that we get from Hubble Space Telescope, and they think that we must, by now, understand how galaxies work. But the fact is that we don't. We don't even understand how stars form. There's many different classes and theories of how stars form, and we don't even know which class is right. And if we don't understand star formation and evolution, we can hardly understand how galaxies form."* -- Joel R. Primack, professor of physics and astrophysics ([link](#)).
- *"It means we don't understand, kind of fundamentally, how galaxy formation works."* -- Pieter von Dokkum, Yale astronomer ([link](#)).

- *"We don't understand how a single star forms, yet we want to understand how 10 billion stars form."* -- Cosmologist Carlos Frenk ([link](#)).
- *"We don't understand how stars form!"* -- Matt Lehnert ([link](#)).
- *"We don't understand how supermassive black holes could have grown so huge in the relatively short time available since the universe existed."* -- Günther Hasinger, science director at the European Space Agency, 2021 ([link](#)).
- *"There is much about the evolution of a typical galaxy we don't understand, and the transition from their vibrant star-forming lives into quiescence is one of the least understood periods."* -- astronomer J. D. Smith ([link](#)).
- *"I got hooked on trying to figure things out; the fact that we don't understand how stars form is pretty mind-boggling considering we want to study things like galaxies."* -- Shari Breen, described as "an expert on star formation" ([link](#), page 24).
- *"The standard model also lacks an explanation for how these primordial fluctuations could have classicalized into the macroscopic perturbations we see in the largescale structure....The reality is that we cannot answer the question of how the hypothesized quantum fluctuations in the inflaton field turned into the classical perturbations responsible for the formation of large-scale structure. Nevertheless, the standard model proffers this narrative, without proof, that this is how stars, galaxies and clusters came into existence."* -- Astronomer Fulvio Melva ([link](#)).

### Cosmic Fine-Tuning

- *"We conclude that a change of more than 0.5 % in the strength of the strong interaction or more than 4 % change in the strength of the Coulomb force would destroy either nearly all C [carbon] or all O [oxygen] in every star. This implies that irrespective of stellar evolution the contribution of each star to the abundance of C or O in the ISM would be negligible. Therefore, for the above cases the creation of carbon-based life in our universe would be strongly disfavoured."* -- Oberhummer, Csot, and Schlattl, "[Stellar Production Rates of Carbon and Its Abundance in the Universe](#)."
- *"From 1953 onward, Willy Fowler and I have always been intrigued by the remarkable relation of*

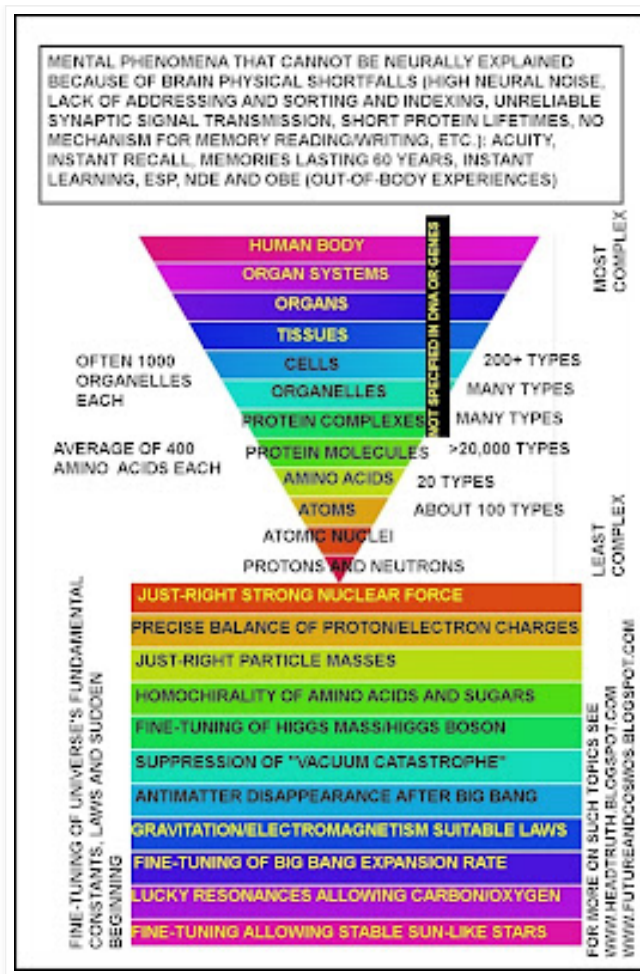
the 7.65 Mev energy level in the nucleus of  $^{12}\text{C}$  [Carbon 12 isotope] to the 7.12 Mev level in  $^{16}\text{O}$  [Oxygen 16 isotope]. If you wanted to produce carbon and oxygen in roughly equal quantities by stellar nucleosynthesis, these are the two levels you have to fix, and your fixing would have to be just where these levels are actually found to be. Another put-up job? Following the above argument, I am inclined to think so. A common sense interpretation of the facts suggests that a superintellect has monkeyed with physics, as well as with chemistry and biology, and that there are no blind forces worth speaking about in nature." -- Astronomer Fred Hoyle, "The Universe -- Past and Present Reflections" ([link](#)).

- **"The cosmological constant must be tuned to 120 decimal places** and there are also many mysterious 'coincidences' involving the physical constants that appear to be necessary **for life, or any form of information processing, to exist....**Fred Hoyle first pointed out, the beryllium would decay before interacting with another alpha particle were it not for the existence of a remarkably finely-tuned resonance in this interaction. Heinz Oberhummer has studied this resonance in detail and showed how the amount of oxygen and carbon produced in red giant stars varies with the strength and range of the nucleon interactions. His work indicates that these must be tuned to at least 0.5% if one is to produce both these elements to the extent required for life." -- Physicists B.J. Carr and M.J. Rees, "[Fine-Tuning in Living Systems](#)."
- "The Standard Model [of physics] is regarded as a highly 'unnatural' theory. Aside from having a large number of different particles and forces, many of which seem surplus to requirement, it is also very precariously balanced. If you change any of the 20+ numbers that have to be put into the theory even a little, you rapidly find yourself living in a universe without atoms. This spooky fine-tuning worries many physicists, leaving the universe looking as though it has been set up in just the right way for life to exist." -- Harry Cliff, particle physicist, in a Scientific American [article](#).
- "If the parameters defining the physics of our universe departed from their present values, the observed rich structure and complexity would not be supported....Thirty-one such dimensionless

parameters were identified that specify our universe. Fine-tuning refers to the observation that if any of these numbers took a slightly different value, the qualitative features of our universe would change dramatically. Our large, long-lived universe with a hierarchy of complexity from the sub-atomic to the galactic is the result of particular values of these parameters." -- Jeffrey M. Shainline, physicist ([link](#)).

- "The overall result is that, because multiverse hypotheses do not predict the fine-tuning for this universe any better than a single universe hypothesis, **the multiverse hypotheses fail as explanations for cosmic fine-tuning.** Conversely, the fine-tuning data does not support the multiverse hypotheses." -- physicist V. Palonen, "[Bayesian considerations on the multiverse explanation of cosmic fine-tuning.](#)"
- "A mere 1 percent offset between the charge of the electron and that of the proton would lead to a catastrophic repulsion....My entire body would dissolve in a massive explosion...The very Earth itself, the planet as a whole, would crack open and fly apart in an annihilating explosion...This is what would happen were the electron's charge to exceed the proton's by 1 percent. The opposite case, in which the proton's charge exceeded the electron's, would lead to the identical situation...How precise must the balance be?...Relatively small things like atoms, people and the like would fly apart if the charges differed by as little as one part in 100 billion. **Larger structures like the Earth and the Sun require for their existence a yet more perfect balance of one part in a billion billion.**" -- Astronomy professor emeritus George Greenstein, "The Symbiotic Universe: Life and Mind in the Cosmos," [pages 63-64](#).
- "What is particularly striking is how sensitive the possibility of life in our universe is to a small change in these constants. For example, if the constant that controls the way the electromagnetic field behaves in a vacuum is changed by four percent, then fusion in stars could not produce carbon....Change the cosmological constant in the 123rd decimal place and suddenly it's impossible to have a habitable galaxy." -- Marcus Du Sautoy, Charles Simonyi Professor for the Public Understanding of Science at Oxford University, "The Great Unknown," page 221.

- *"The evolution of the cosmos is determined by initial conditions (such as the initial rate of expansion and the initial mass of matter), as well as by fifteen or so numbers called physical constants (such as the speed of the light and the mass of the electron). We have by now measured these physical constants with extremely high precision, but we have failed to come up with any theory explaining why they have their particular values. One of the most surprising discoveries of modern cosmology is the realization that the initial conditions and physical constants of the universe had to be adjusted with exquisite precision if they are to allow the emergence of conscious observers. This realization is referred to as the 'anthropic principle'...Change the initial conditions and physical constants ever so slightly, and the universe would be empty and sterile; we would not be around to discuss it. The precision of this fine-tuning is nothing short of stunning. **The initial rate of expansion of the universe, to take just one example, had to have been tweaked to a precision comparable to that of an archer trying to land an arrow in a 1-square-centimeter target located on the fringes of the universe, 15 billion light years away!**" -- Trinh Xuan Thuan, Professor of Astronomy, University of Virginia, "[Chaos and Harmony](#)" p. 235.*



Posted by [Mark Mahin](#) at 7:14 AM



Labels: [candid quotes of scientists](#), [cosmic fine tuning](#), [evolution](#), [origin of biological complexity](#), [origin of life](#), [origin of sexual reproduction](#), [paleontology](#)

## 1 comment:



**Robert** April 28, 2023 at 11:42 AM

Given the extraordinary volume of shortcomings of the physicalist paradigm, one might think that the necessity of replacing it would be an irresistible force. It is astonishing that the objection to (at least) disclaiming it remains, so far, an apparently immovable object.

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